FEBRUARY, 1951

American Engineer

IN THIS ISSUE . . .

AN ENGINEERS' WEEK MESSAGE
FROM PRESIDENT TRUMAN

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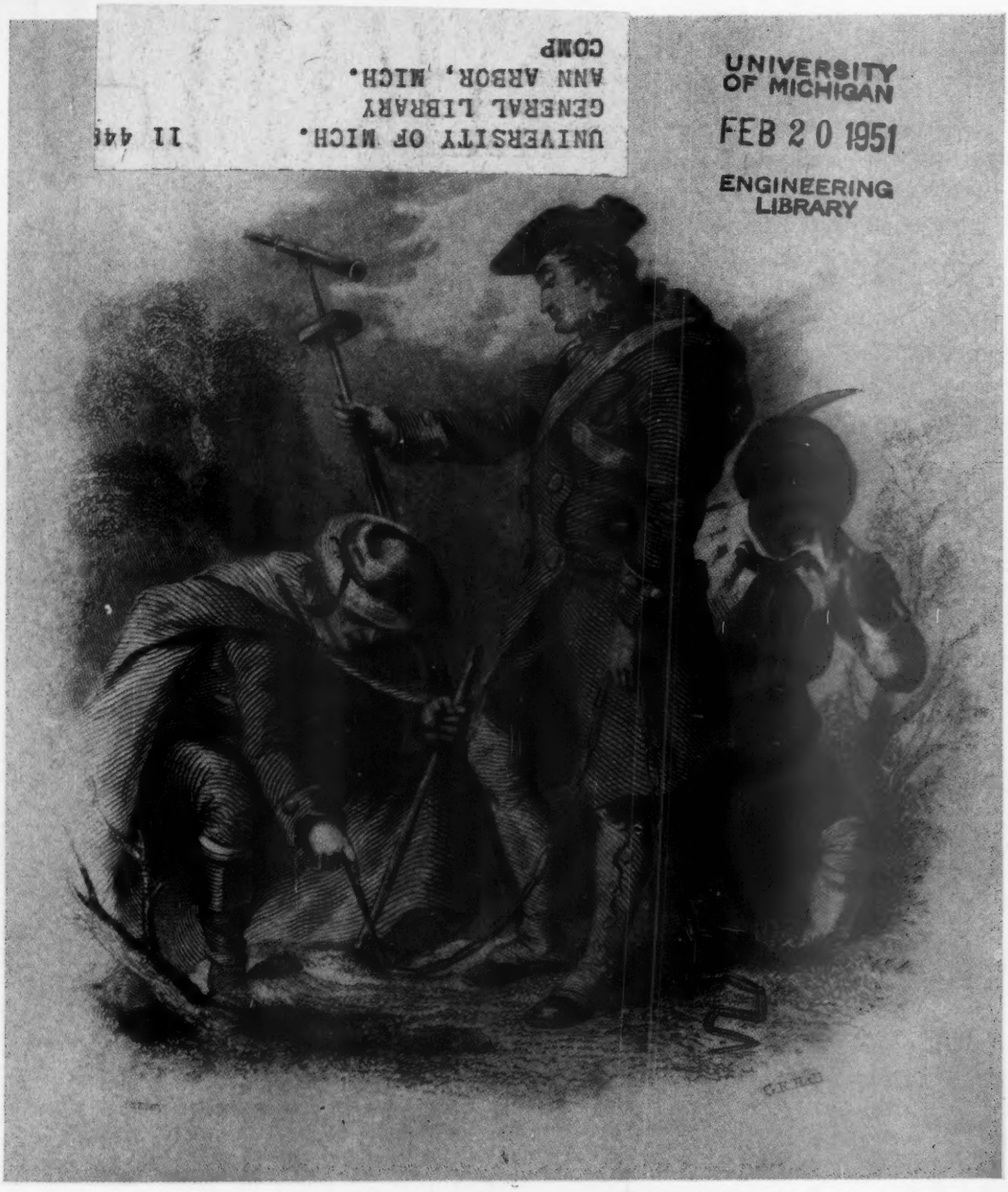

GEORGE WASHINGTON: ENGINEER
His Entire Life Was One of Service

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FOUNDED 1918

Engineers' Week—February 18-24, 1951

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A MESSAGE FROM THE PRESIDENT OF THE UNITED STATES

THE WHITE HOUSE
WASHINGTON

January 11, 1951

Dear Mr. Stolte:

Your celebration of Engineers' Week February 19-24 this year should be an occasion for the engineering profession to rededicate itself to the peace and well-being of our common country.

At this time, with our Nation's very liberty at stake, and the peace of the world hanging in the balance, it is more urgent than ever that the engineering profession devote all of its strength and influence to the welfare of the Nation and the world.

Please convey to the members of your Society my greetings and best wishes for success in their celebration of Engineers' Week.

Very sincerely yours,

Harry Truman

Mr. S. L. Stolte,
President,
National Society of Professional Engineers,
1121 Fifteenth Street, N.W.,
Washington 5, D. C.

ENGINEERS' WEEK
FEBRUARY 18-24

American Engineer

FEBRUARY, 1951

A Message For Engineers From the President of the United States .....

Engineers' Week Message from NSPE President

Washington, The Engineer .....
By Fred W. Fisch, P.E., Deputy Superintendent, N. Y. Dept. of Public Works. Here is a colorful picture of a little known part of the First President's life.

The Professional Torch .....
By N. W. Dougherty, P.E., Dean of Engineering University of Tennessee. The service motive—mark of the true professional...

Industry Appraises and Develops The Engineer
By Everett S. Lee, Executive Engineer, General Electric. The engineer and industry are interwoven into the same cloth.

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NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS FOUNDED 1934

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Publications Committee, NSPE
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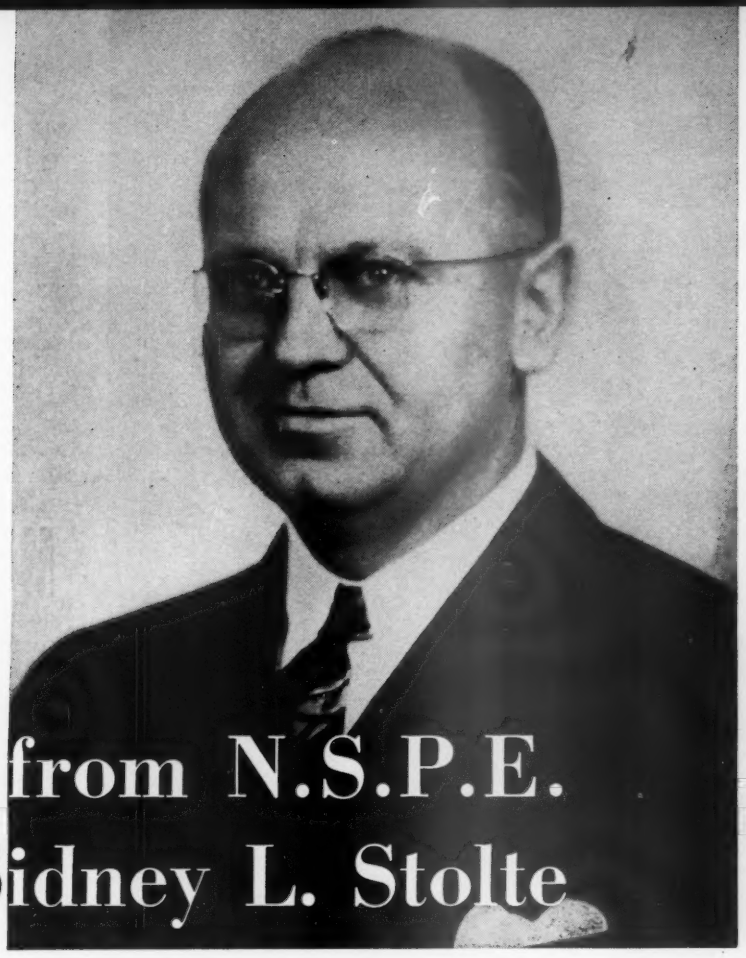
"In the modern world of turmoil and strife in which we live, it is absolutely essential that our educated people, particularly our professional people, acquire the broadest possible understanding of modern society, of how it works, and how it fails to work. Scientists and engineers, because the effects of their material accomplishments are so great, are under a special obligation to think broadly and humanely about their work and its impact."

—JAMES R. KILLIAN, JR.
President, Massachusetts Institute of Technology



A Message from N.S.P.E. President Sidney L. Stolte

THE engineering profession will observe Engineers' Week this year during the period February 18-24. It is my pleasure to report to the membership that never before in the history of the Society have such extensive preparations been made to celebrate the Week. State Societies and Chapters across the Nation will carry on programs designed to tell local citizens more about the profession and its dedication to service to mankind.

It is appropriate that our thoughts be those of service during the observance. Coinciding with the birthday of our great First President, we are reminded of his devotion to our land and its people. We are reminded that his early and, by his own admission, happiest days were spent in engineering activity in the wilderness of the new Republic. We recall that he was throughout his life, ever ready to lay aside his personal wishes and stand ready to serve.

As President Truman so wisely said in his recent message to us, this must be an occasion for us to rededicate ourselves. Our beloved country has assumed leadership in the world struggle for Freedom, and such an important segment as the professional engineers must take a major share of this responsibility. I know I speak for all of you when I say that that responsibility will be gladly taken.

We as a profession have made tremendous progress during the past few years. That progress has a real foundation of continuing service. We can hope to sustain our forward movement only so long as we place the common good above self interest.

With all good wishes for a successful Engineers' Week,

Sidney L. Stolte,
President, N.S.P.E.

Young Washington on his hazardous mission to the Ohio.

The great leader and his men at the Battle of Princeton.

G. Washington: Engineer

By Fred W. Fish, P. E.,

Deputy Superintendent,
New York State Department of Public Works,
And Member, NSPE

Most historians and biographers have been inclined to describe Washington primarily as a soldier or a statesman. It is true that these interests were predominant in certain periods of his life and that his accomplishments in these fields were history making. However, other biographers, particularly Eugene Prussing, hold that while his military and political life were of great importance, they were incidental rather than intentional, for his real purpose in life was to be neither a warrior nor a statesman. He deplored war and disliked office. I have drawn heavily from Prussing's biography, for I feel that he has brought together a series of facts concerning Washington which are admirable for this purpose. Taken together, they account for the skill in planning, constructing and managing, the power of seeing ahead and accomplishing things, which were so remarkable in the man, and which were simply engineering.

When Washington finished his schooling at the age of sixteen, he had studied geometry and trigonometry and had had some drawing. Therefore, his brother Lawrence concluded that he should be taught the art of surveying. Accordingly, he was apprenticed to George William Fairfax, a brother-in-law of Lawrence Washington, and an experienced lad of twenty-one. Young Fairfax was employed by his cousin, Lord Fairfax, the owner of vast lands bounded by the Rappahannock and the Potomac Rivers, extending north and west across the Blue Ridge and the Shenandoah Valley to the headwaters in the Allegheny Mountains.

In the spring of 1748, young Fairfax and Washington crossed the mountains on horseback, traversed the Valley to Harpers Ferry, and then went westward and onward up the branches of the Potomac, surveying the lands bought by the settlers from the proprietor, Lord Fairfax. After an entire summer and fall of this training in engineering, Washington was deemed to be well enough versed in the subject to proceed to Williamsburg, the capital of Virginia, there to qualify himself before the faculty of William and Mary College as a candidate for the post of County Surveyor of Culpeper County, which had been formed that year. The office of County Surveyor was then, as now, not a mere trade or business, and its importance was duly regarded. It is interesting to learn of the requirement that satisfactory qualifications be established and that examinations for that purpose were conducted. In a manner, this policy of the middle 1700's is comparable to our present day procedures for registering professional engineers. It is to be presumed that while the scope of the examinations of those days was more modest than those of today, it enabled a sufficient determination of the knowledge and character of the applicant to establish his ability to conduct the affairs of the office. Washington was successful in his examination and thus, at the age of seventeen, he became a public official of importance and an engineer.

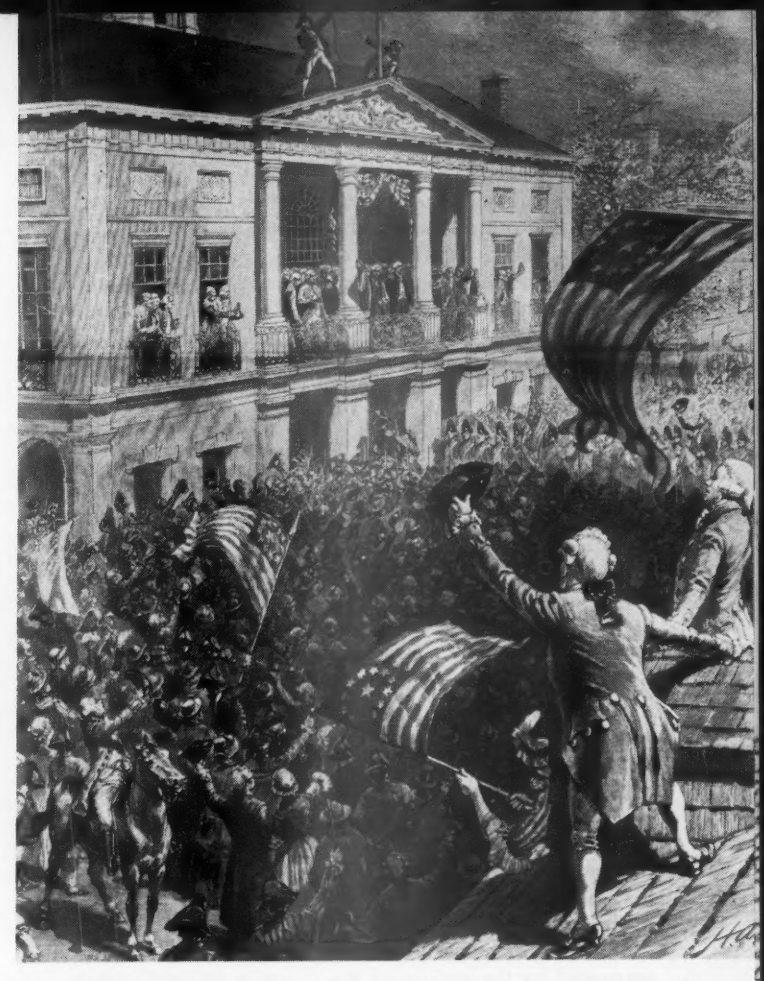
In addition to the summer surveying work, Washington, during the winters of 1749-51, assisted his brother Lawrence in the care of the Mount Vernon estate, along with the management of various enterprises including the iron furnace business and the successful Great Ohio Company. In aiding his brother in this work, in laying out a route across the mountains from what is now Cumberland, Maryland, to the present Pittsburgh, in fitting out immigrants, traders, and stores, in examining the desires and measures of the government and the adventurers who were the company's stockholders, Washington's young and vigorous mind was opened to and impressed with the importance of the vast country beyond the Alleghenies to the Lakes and the Mississippi, and from his 18th year until his death, 51 years later, the vision never left him.

It was in 1752 that events took place which were to alter Washington's mode of life and interrupt his dreams of an expanding Empire. Historians in looking back, have conceded that the Ohio Company was a device to test out Great Britain's claims to the disputed lands of the Ohio Valley, to which the King of France not only pretended ownership, but was making active efforts toward possessing. These facts were confirmed by Ohio Company explorers and resulted in getting military preparations under way in Virginia.

Washington was appointed Adjutant for all of the district north and west of the Rappahannock and Potomac Rivers to the Ohio, carrying with it the responsibility of organizing and training local militia and generally to supervise military construction such as roads, forts and stockades.

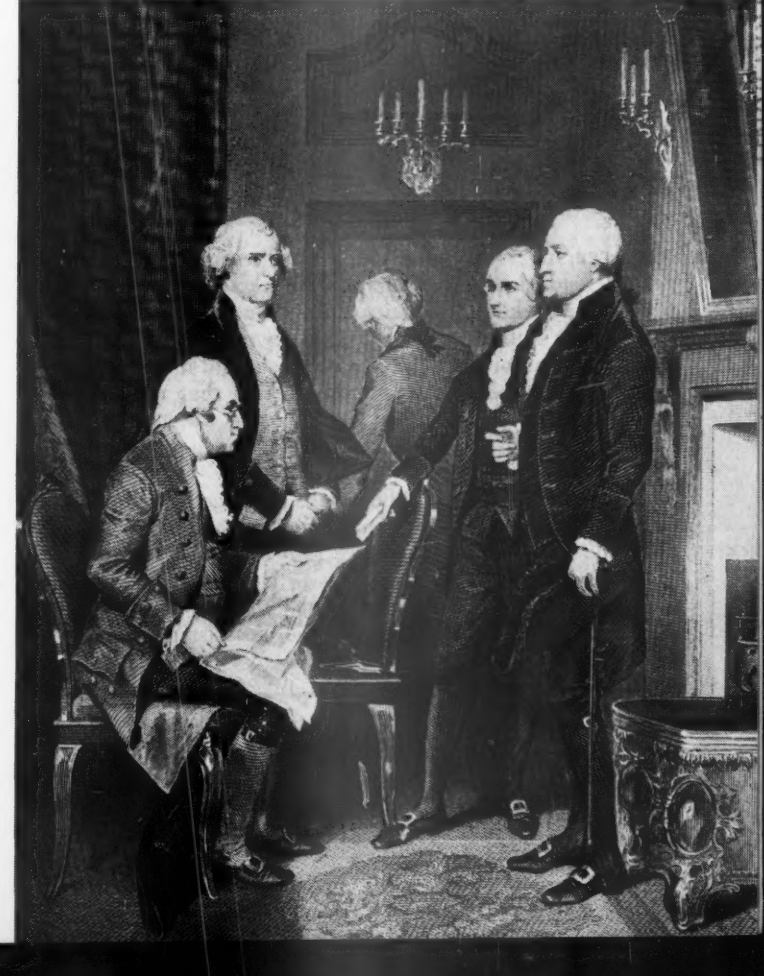
The step from civil to military engineering was short but natural, and the boy became a man in the taking of it. The subsequent events, including his famous trip to the French Commander at Duquesne, his report which followed and which was to serve as a justification for the subsequent war, are now classic memorials. He recruited two companies of men on the strength of a promise of shares in 200,000 acres of the lands they were to protect; built his first great public work—the road from the Potomac to the Ohio across the mountains; and for five years served the Colony in the defense of the frontier against the French and Indians. In November, 1758, despite Colonial reluctance and the death and defeat of both General Braddock and General Forbes, he succeeded in planting the British flag on the ruins of Fort Duquesne, where he then established a British post called Fort Pitt. So far as Virginia was concerned, the war was over when the French were ousted from the Ohio Valley, and Washington resigned from the army to resume the ways of peace.

In his many subsequent efforts, our engineer was also successful. The 200,000 acres on the Ohio which the Governor had promised to the Virginia soldiers in 1754 needed to be secured, surveyed, plotted and divided, and Washington became the agent and trustee of his officers and men in advancing that project. Following his election to the Virginia Legislature, he steadily pressed upon the new Governor and the negligent home government in London, the justice and urgency of the claims of the Virginia defenders, and through constant argument and petition finally secured, after twelve years of effort, the patents for the lands. As part of the service, in 1770 he made a swift trip to the Ohio to select the land for his men. He found and preempted the finest spot in the land along the east and south banks of the beautiful river and its great tributary and fixed the boundaries and procured



Though longing for private life, Washington becomes President.

First Cabinet: Knox, Jefferson Randolph, Hamilton, Washington.



the measurements and plotting thereof at his own expense. He then partitioned the land among the hundreds of claimants and saw that each one received his share. The labor was infinite, and the risk and expense extreme, but finally all was adjusted and done because he was a conscientious and tireless engineer.

During the same period he obtained legislation authorizing clearing and making navigable the Potomac River from the great falls (near Washington, D. C.) to Fort Cumberland. During the French and Indian War he had urged General Forbes, who was disposed to build a new road from Philadelphia to Pittsburgh, not to waste time, men and money in such an enterprise, but to follow the already established route to Fort Duquesne. Washington pointed out that after the Virginians and Pennsylvanians had commenced trade with the Indians along the Ohio, they were concerned with obviating the many inconveniences of the bad roads. Following ineffectual efforts to discover where a good one might be made, they employed several intelligent Indians who had acquired a perfect knowledge of these mountains from many years of hunting and travel. The advantages of the route designated by the Indians being proved by time and experience, a road was developed at great expense by the Ohio Company.

It was a favorite phrase in Washington's letters to refer to this route as the channel of commerce of the extensive and valuable trade of a Rising Empire. It was only a short time later that Washington was again on his way across the mountains to pursue his own interests and those of his soldiers in looking for the land which he had been promised, making his fifth trip.

Washington's peacetime interests, however, were interrupted by the actions of the Colonies in the Continental Congress, leading to the Declaration of Independence and the eight and half years of war and struggle which followed. During the course of the Continental Congress session, Washington was offered the position of General and Commander-in-Chief, and became the unanimous choice of the delegates. Outstanding throughout the period which followed, was the constant foresight, planning, providing and protecting mind of the engineer. The very drafts and plans of the camps and battlefields were often in his own hand. The thoroughness of preparation which enabled him to force the evacuation of Boston, to cross and recross the Hudson above New York, and the Delaware River at Trenton, and later to send his army from New York to Yorktown without arousing British suspicion, were all the work of a great engineer.

LATER, in 1783, he made a northward tour to see the battlefield of Saratoga and to become acquainted with the posts on Lake Champlain. Returning to Albany, he and Governor Clinton proceeded westward up the valley of the Mohawk on their way to Niagara, and it was then that Washington beheld the possibilities of that route to connect the Hudson with the Great Lakes, which is now followed by the New York State canal, and pointed it out to the Governor.

Not long thereafter, he wrote to General Lafayette as follows: "I had it in contemplation to make a tour through all the Eastern States, thence into Canada, thence up the St. Lawrence and to the Lakes to Detroit, thence to Lake Michigan by land or water, thence to the western country by the River Illinois, to the River Mississippi and down the same to New Orleans, thence to Georgia by way of Pensacola and thence through the two Carolinas home. A great tour this you will say. Probably it may take place nowhere but in imagination, though it is my wish to begin it the latter end of April of next year." Here again, we see the mind of the engineer was active and far afield.

It is interesting to note here that for ten years the colonists had struggled to form a more perfect union and had been unsuccessful. The Articles of Confederation had proven wholly inadequate and throughout the Revolution they had been a source of embarrassment, delusion and failure to Washington in carrying out the war. However, here in this matter of regulating a means of commerce, four states immediately joined together and before the matter was finally approved, delegates of eight states had met and discussed the plan.

The combination of Washington and Hamilton dominated the assembly and it soon appeared to these practical men that the legal, moral and political interests of the Colonies were involved as well. And so it was, that in pursuit of an engineering project on the Potomac River and the practical regulation of interstate commerce which was involved, Washington brought about in May, 1787, the great convention which created the Constitution of the United States. Finally, in September, 1787, all questions were settled, differences were harmonized and the finished product was signed.

It was Washington who again secured the consent of the people, and after ten months of struggle, the Constitution was adopted, a new nation was born and Washington sworn in as President of the United States. Thus, the engineer who had planned the project of binding the coastal colonies to the plains beyond the mountains nearly forty years before now saw before him the realization of his dream. He did not fail to answer the call of the people when they unanimously chose him to make good the plans and specifications he had laid before them. Again he left all his private affairs, the pleasures and comforts of domestic life, and the possibilities of great fortune behind him, and undertook public service of the most arduous kind. He knew that if he now failed all his great reputation would be gone and he would go down in history as the destroyer in peacetime of the nation that he had saved in war. It was enough to make a brave man hesitate and while he saw it clearly, it only made him humble, caustious and strong in his determination to make any sacrifice needed and to do the best he could.

IT was an engineer's job, and the engineer took hold and for eight years kept his grip on the work. At the end of this time of constant, painful effort, the great job seemed able to stand alone and no longer to need the strong hand. Then he wrote the specifications for the future called his "Farewell Address." He retired to his estates where Nature gave him just a little less than three years to get his affairs in order and then pass on.

A half century after the death of Washington another great man had occasion to speak as follows, "Washington's is the mightiest name on earth—long since mightiest in the cause of civil liberty, still mightiest in the moral reformation. On that name no eulogy is expected. It can not be. To add brightness to the sun, or glory to the name of Washington is alike impossible. Let no one attempt it. In solemn awe pronounce his name and in its naked deathless splendor leave it shining on."

Lincoln, who wrote and said this in all sincerity, lived and died in and for the principles of Washington. And this developed, as a result of the indomitable pioneering spirit of our ancestors, led by the Engineer Washington, a great country, preserved by Lincoln in its darkest days, and which lives today as the greatest bulwark of freedom and opportunity in all the world.

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FEBRUARY 18-24

Professional men must by word and deed uphold the service motive.

THE PROFESSIONAL TORCH

By N. W. Dougherty, P. E.

Member, NSPE, and Dean of Engineering
University of Tennessee

In a complicated and money mad society there must be those who are known for their service motives. Americans have emphasized production so much, eulogized profits so highly that they are tempted to forget that production and profits are only contributing parts of a machine age and not its total objective. Goods and more goods have their place in a growing and balanced economy but they must be produced and used in such a way as to give happiness and better living. Some one in any economy must furnish services, rather than create goods and gadgets.

No civilization can survive if it loses touch with nobility of achievement; it may put its prophets to death as they render service, but to live it must produce them. Some societies have slain their greatest benefactors but in the slaying they have brought bold and unselfish action into such relief that the people followed the prophet rather than his judges. Matthew Arnold has written a line which should be woven into the thinking of our producing generation: "Life consists not in getting and holding, but in being and becoming."

In a democracy we are outraged by those who take advantage of guaranteed freedoms to plot their overthrow. Those who are fellow travelers of foreign isms are usually those who expect to advance because of privilege rather than by production. They fritter their time and energy in trying to find a short cut to power rather than through the ordinary road of hard work and of service rendered. Fine phrases and exaggerated promises have diverted a few to paths which lead away from decency and order.

Professional people have usually been conservative; they make changes slowly; they are usually opposed to welfare states; they believe that each person should earn his own living. The doctors are opposed to socialized medicine; the lawyers are opposed to rule by fiat; the engineers are opposed to made work; the ministry is opposed to the Devil though they sometimes fail to identify him with many things that other professions loathe. It is impossible to organize a dictator society among professionals.

In every age there has been the torch bearer; there has been some group who by word and deed upheld the service motive. In Judea the prophets called the people to righteous living; in Greece the philosophers inspired the people; in Rome the love of law and order supported the state for a millennium; in every generation there have been wise souls who have cried to all who would listen, directing them to the paths of service. In our day there are certain groups which are the "descendants of the medicine man, who held his position in the tribe because of his service to the people."

BEFORE the development of modern professions, nobility of birth carried with it obligations for honorable conduct. Noblesse oblige was used to denote the obligation of honorable and generous behavior associated with high rank of birth. One was born to honorable conduct, and being so born placed its obligations for generous living. We have no noble class, no wellborn people, but our society has just as great demand for nobility of purpose as that of any other generation.

If there be a group today which deserves to wear the mantle of nobility that group comprises the professions. In

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countries where the ancient marks of nobility may be won by generous acts and wise performance, many professionals receive the distinction. In America where titles of nobility are prohibited by the Constitution we have substituted other recognition for those who have rendered service beyond the call of duty.

Service fully compensated is real service but service rendered over and above compensation places its giver under the designation of "noblesse oblige." It is service peculiar to the benefactors of the race; it is service beyond the call of fair compensation; it is the voluntary effort of the great souls of every generation. The tradesmen may well ask: where do I come in? or what benefit is it to me? and still contribute to the general good, but there is a service which is rendered which does not ask full compensation. In the following paragraphs we shall undertake to show that the professions render this type of service.

First of all we consider the ministry, because for generation upon generation its avowed objective has been unselfish service. Now and then individuals have been anxious to further the priestly cause by building up legends, heroizing themselves as the mediators, and emphasizing formal worship, but in every generation there have been members of the craft whose self imposed duty has been to unselfishly help the people. They have not looked for a strong, well knit organization, but have expended themselves in doing what they could do to help others live a better life.

As the American settlements moved westward the circuit rider, sometimes with a loaded rifle on his shoulder, moved with them. He carried his Bible and his exhortations to every community. Oftentimes he tried to convince by fear of damnation and the possibility of fire and brimstone, but when people were sick or in distress he was ready to render every aid at his command. Now and then his theology was vulnerable, requiring emphasis upon positions which his parishioners did not take too seriously, but they always believed his motives were good and that his message was comforting.

Today we know that the ministry is filled with pure souls who are dedicated to unselfish service, but ever and anon we sleep under their exhortations because they become detached from the problems of living in a machine age. Those who make little contribution in the communities have reconciled their gospel with the rough edges of their congregations and are able to preach in such generalities as not to offend opposing groups. They have fallen into the error of preaching what the congregation likes to hear rather than preaching what the congregation should hear. It is much easier to take the "rich young ruler" along with his possessions than to have him give his riches away and follow as a servant only. In spite of the doctrine of dedicated riches the profession, as a whole, has rendered untold services of consolation, comfort, inspiration and excellent example.

Medicine, because of its special technical knowledge, occupies an even greater place of confidence in its relation to its patients than the minister occupies to the parishioner. Bold prophets, without technical knowledge, have always found a place in the ministry, but this is impossible with medicine. To perform with requisite skill the practitioner must have knowledge of many subjects; there is no substitute for such knowledge. Not only have the practitioners had the needed knowledge, but where it was lacking, their services have been lacking.

In Europe and America medicine is at the cross-roads. Many practitioners have imbibed of the fleshpots of financial prosperity and in some cases they have made it impossible for the poor but deserving to get the best medical service. This has brought the whole professional under the public eye. Along with some neglect by the physician has come a breed of politician who has assumed the power to help level off the inequities by taking from the prosperous and giving to the needy. The combination has placed medicine on the verge of socialization.

THERE is confusion in our thinking because we scramble two philosophies of work and compensation. The first, advocated by the communists, is contribution according to ability and compensation according to need; the other, advocated by the American business man, is contribution according to ability and compensation proportional to contribution. The first dictum has never worked because the individuals concept of his need will never conform to his neighbors or his governments estimate of the need. If the worker does not get what he thinks he needs he will modify the contribution according to receipts rather than according to ability. In America we have had confused thinking regarding production according to ability because we have vast natural resources and we have confused exploitation of resources with ability to produce. In medicine the practitioner has received, in the strategic locations, small sums from most of his patients but in the aggregate the total has been large. He has confused the lack of competition with his ability to perform, and has oftentimes, made charges which were much out of proportion to the time involved or the knowledge displayed.

However, it is to the advantage of all the professions and to the public at large to keep medicine out of the hands of the politicians. Recent political activities indicate that those who are in office are willing to use the resources of government at their disposal to keep themselves in office. We should avoid political control of the services of health as we would avoid any other disease.

No one in society today has a greater call upon the esteem of the people than physicians in every community. They are available on call, they wear themselves out in service to their patients, and when they use their money as normal citizens no one begrudges their prosperity. The healing of a disease, the saving of a hand or an eye, or the saving of a life cannot be valued in money; these services are worth more than any normal charge. But to be a physician the practitioner must not take all that the traffic will bear but must be satisfied with nominal compensation. He is a servant of the people and as such he must not place himself out of reach of their necessity and their income.

Law has had more ups and downs than the ministry or medicine but it is riding high today. In a generation in which we are trying to do all tasks with government the lawyer is having a heyday; he is at the heart of the whole business. Lawyers make up the Congress, they are the members of the legislatures, they occupy high government executive position, they are the judges and they hold key positions in business. Americans are so used to regulation by law that whenever there is an evil they would remedy it "by passing a law."

...rch in an Industrial Society . . ."

Lawyers generally are conservative; their training causes them to venerate the past; they would leave things as they are: Now and then a lawyer goes wild eyed and wishes to change the rules of the game to give himself, and those like him, more power but such practitioners are few. They take an active part in community affairs; their success depends upon general public knowledge and public confidence.

THERE is a general reverence for the courts. We deplore the laws delay but we respect the opinions of constituted authority. If the representatives of the people pass a law that the courts say is null and void, we, as a people, respect the judgment. We resent tampering with the courts for political purposes; we do not respect an individual who accepts a position on the court when we know he knows he is not qualified. Our desire for respect for the courts is enhanced when men like Justice Holmes or Roscoe Pound pass across the stage.

Far seeing lawyers are enhancing their profession and making the people, generally, believe that law is a noble calling.

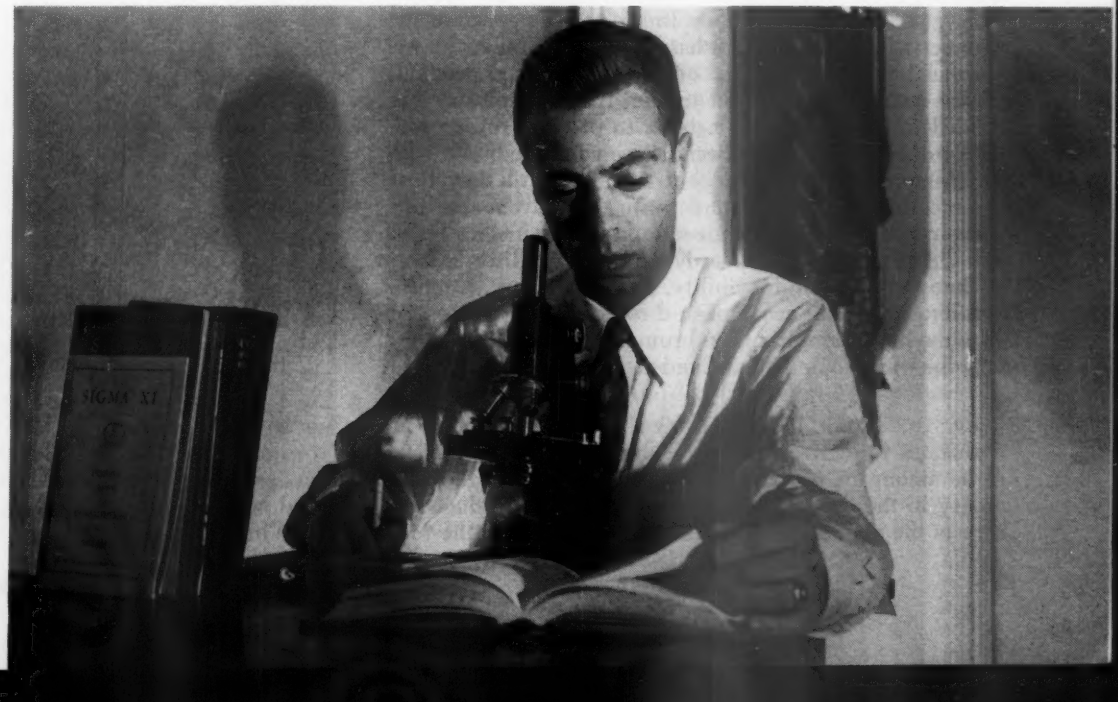
Why all the talk about preachers, doctors and lawyers when our interest is with engineers? Obviously we are not in a different class from the other professionals, though our work may be more with materials and processes than with men and methods. It is because we have neglected our human relations and minimized our contributions to living that I have pointed to our kinship with other professionals. We do not wish to ride into public esteem on the banner of other groups but we must not forget that ours is a service profession in keeping with the best traditions of any other.

Our position is somewhat complicated because many of our members render a service through goods and products rather than through personal services. Not all of us have the same personal relation to our clients or to the public, but somewhere our activity must impinge upon the health, safety or property of the general public. We produce a machine or a structure and thus affect the safety and health of all who use it; we build a water plant or a sewage disposal works and it is obvious that our every decision has to do with health and safety. The public depends upon our doing the task well.

Mechanical engineers have perfected an automobile which can be operated by a sixteen-year-old girl, without mechanical ability, and with safety and dispatch. All who build the automobile are duty bound to see to it that the machine is safe and dependable. Behind all the work is the thought, the energy and skill of the engineer. The same may be said for electrical machinery, the airplane and every household device. Engineers are doing more than making goods and products; they are rendering an essential social service to all who use or are served by their products.

SINCE engineers have built the factories, the railroads, the highways, the bridges, and the buildings they have been connected with inanimate things; the public has respected their abilities and has recognized their services but not in the same personal way that it has recognized medicine and the ministry. Engineers do not render the same kinds of personal services but they are servants also. Their voices must be heard in civic matters; they know about machines, power, traffic, sanitation, water supply, transportation, and a hundred other things which concern each community. To inherit the public esteem that they deserve, their services must be recognized by the public. Engineers are not just hired help; they render an essential social service; they go the second mile along with other professionals.

All professionals earn more than a daily wage, but they are duty bound to render all the service required, regardless of the wages received. The minister heeds the call of a needy congregation; the doctor operates for the charity patient; the lawyer must make wise laws and render just judgment no matter what the compensation; the engineer must protect the public health and safety whatever his task or stipend. As professionals we inherit a long tradition of nobility. Ours is the task of bearing the service torch in an industrial society. Being in our kind of calling puts us in the position of noblesse oblige to this generation.



The engineer devotes much of his life to service. From student days through professional life, he must learn to give of himself.

Industry Appraises and Develops The Engineer

By Everett S. Lee, P. E.

Executive Engineer, General Electric Company
Past President, AIEE, and Member, NSPE

Industry stands today entwined with the engineer. He permeates its entire fabric. He has grown with industry to be among its leaders.

SPEAKING to a House of Representatives Monopoly Subcommittee recently, Benjamin F. Fairless, President of the United States Steel Corporation, told the committee that United States Steel

> "is successful, it is profitable, it is efficient, and it is a large enterprise. These are the simple facts and I am proud of them,"

and I think we can all thrill with Mr. Fairless in his pride, and I believe his statement can be applied to all American industry which has built the greatest industrial nation on the face of the earth.

And in this achievement the engineer can well be proud, for in back of all the construction of industry stands the civil engineer, in back of all the industrial metallurgy stands the mining and metallurgical engineer, in back of all the machinery of all industry stands the mechanical engineer, in back of all the chemical processes throughout industry stands the chemical engineer, and in back of all the electric power and machinery and lighting and communications which move and direct industry stands the electrical engineer. Every material thing we have has behind it a romance of engineering and industrial achievement. This is the contribution of the engineer to the service of mankind. This is the contribution of the engineering profession.

The length and the width and the breadth of this contribution cannot be totally realized because of its enormous magnitude. Go with me wherever you will in this great country of ours, and there you will find industry giving work to millions of our people to sustain them and to give them the satisfactions of life. And wherever you find industry, you find the engineer. Industry has appraised the engineer with greatness as it has recognized him as the one who fashions the knowledge of the universe into products for the people to have and to use. And as industry has builded to the greatest of heights to produce these products, so has the engineer been provided by industry with the sinews to develop his contributions until they have become the greatest of wonders in every avenue of life. Industry owes all to the engineer and the engineer owes all to industry, that from his study, from his hard work, from his knowledge, from his ability, from his vision, from his unfailing fervor to accomplish the impossible and to produce the new, there has been brought forth all of the products for our people to have and to use.

INDUSTRY stands today entwined with the engineer. He permeates its entire fabric. He has grown with industry to be among its leaders. He is established throughout industry in the development and design of its products. He directs the processes of industry. He establishes the tools of industry. He installs and operates the services of industry. And he sells the products of industry. Take him from industry and industry would collapse.

And insofar as government includes the engineer within its operations, the same applies.

And each year the engineering schools of our land bring to industry the young engineers who would enter industry to add their contributions to the endless procession of engineering achievement which undergirds our ever increasing standard of living.

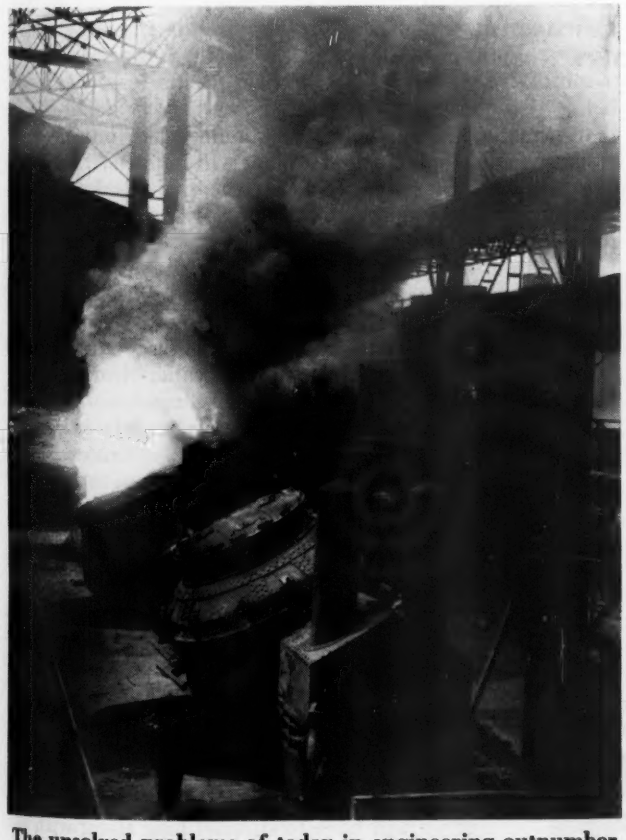
And the young engineers can expect to find in industry, that industry will be looking to find in them those same qualities which have characterized the engineers who have entered before them. Men who are honest, men who are loyal, men who are reliable, men who are dependable, men who have knowledge and understanding of the phenomena involved, men who can conceive of the new and who have the wisdom and the courage to carry it through to successful accomplishment, men who are enthusiastic in their work, men who know how to work with other men, men who are leaders, men who have knowledge beyond the usual, men who have skill beyond the skillful, men who have judgment as to action, men who have wisdom as to compromise, men who respect human endeavor and human safety, men who have personalities that are pleasing and inspiring, men of character who live righteously to serve their fellowmen with distinction. These are what the men of industry look for in those engineers newly coming to their doors. These are the characteristics of the engineering profession. These are what are expected of the engineer.

AND it is a great tribute to the engineering schools of our land that they have provided for the young engineer, as he associates himself with his teachers and his fellow students, the opportunity for him to weave into his life these attributes in so far as he is able. Industry as it has developed more and more from the contributions of the engineer, and as the engineer has developed more and more from his own contributions, expects more and more from the young engineer. And from our engineering schools he should be equipped with the fundamentals to meet this greater expectation. But the development does not stop at entrance to industry. Rather it is accelerated and focused in a myriad of ways to the accomplishment of the multitude of outputs demanded from industry. To this acceleration and focus the young engineer must learn to adapt himself, and industry's appraisal of him will result from his success in his adaptation to his new work, from his progress in his new work, and from his accomplishments and contributions as he daily advances.

While the basic fundamentals of all industries are gen-

erally the same, the detailed organization arrangements and concepts differ greatly throughout industry, as it is to be expected where our greatest fundamental in this country is freedom, and where a multitude of considerations come into each individual industry situation to govern the result. Thus the young engineer will have to ascertain these individual characteristics and to evaluate them as they apply to his individual ability, to accept them and live along with them, until as he lives with them he becomes a part of them, and with the increase of days he finds himself in position where he is contributing to their direction. And so there is the period of training. The engineering and industry publications are full of descriptions of these periods of training. Here the young engineer can appraise for himself the consideration which industry gives to him in his initial years. And where it is substantial he can know that the concept of the engineer is good throughout the further years of his engineering life. And he has the knowledge also that he becomes a contributing part to the whole as he advances, and that he can play his rightful part in shaping it.

THE early years of engineering training in industry, while offering every opportunity, are often long and hard and sometimes wearisome. There is the discipline of learning to adapt oneself, and the transition is usually so abrupt that the way seems hard, but if the young engineer will continually keep in mind the fundamental that his is a great opportunity because of what has been builded before him, often extending over many years and including many people, he will realize its need and its reasonableness, and will master it as quickly as possible that he can put his energies into moving onward to apply himself to the new that needs to be accomplished. The unsolved problems of today in engineering outnumber the solved. Thus there is for the young engineer as he begins to establish himself in industry the opportunity to apply himself to the unsolved problems which are waiting to be solved. And if he can give promise to solve them, he will find industry ready to provide him with the means for so doing, and usually much beyond his own ability. Thus the young engineer develops, hand-in-hand with industry, and his appraisal by industry is in accordance with his development and his contributions. And as he grows into positions of responsibility and trust he in turn will be helping to develop the engineer younger to him, and to appraise him. And thus his engineering life is progressed. And with it comes the friendships of his fellow engineers and his associates. These are what make his engineering life a joy. And these he must not neglect, but these he must cultivate.



The unsolved problems of today in engineering outnumber the solved.

Now, just as everything else in life has an independence and a dependence, so does the engineer have an independence and a dependence. The world needs engineers for engineering. Engineering is the independence of the engineer. This is his great responsibility in life. It is in the doing of it substantially and superlatively that progress results. That the engineer has applied himself to his great responsibility is shown by the industrial structure that has been built and the output that has resulted. In this he has been truly successful.

THEN there is the dependence of the engineer upon his fellow men. From the scientists he obtains new knowledge which he molds into new products for our people to have and to use. From the great leaders of industry has come the industry of which he is a part. From the workers in the shop is provided the proficiency of hand and of eye to turn out in massive numbers the products he has developed. From the services groups come the services he requires. And the salesmen and the merchants arrange the products for the people to see that they may exchange their dollars for the satisfactions which the products bring. And thus the products of the engineer get to the people for their use and enjoyment. This is a long and a noble procession.

Then there is another group entwined in this procession. There are the doctors who keep us in good health; the lawyers who keep us in line and keep us out of jail; the bankers who provide the wherewithal to give us a start and to help to keep us going; the farmers who provide us with our food; the entertainers and the sports people who give us enjoyment; the ministers who guide us in paths of righteousness; the statesmen who lead us in government; and the politicians; the men in the Services who protect us from the enemy; and the school teachers and those at home who teach us all and bring knowledge and understanding and wisdom everywhere to the young people entering the entire procession to keep the whole continuously supplied.

The result in this great country of ours is what we have all done together, and the engineer is in the forefront of the procession. His independence is fundamental that he opens new doors. His dependence is his concern that the procession through the open door is for great good.

And thus industry appraises the engineer. And thus the engineer develops with industry. His appraisal is great as his contributions are great. He has increasingly developed as he has used the sinews of industry for his development. And he has builded well.

In the words of Ruskin—

> "Therefore, as we build, let us think that we build forever. Let it not be for present delight, nor for present use alone. But let it be such work that our descendants will thank us for. And let us think, as we lay stone on stone, that a time is to come when these stones will be considered sacred, because our hands have touched them, and that men will say as they look upon the wrought substance of them, 'See! this our fathers did for us.' "

Universal Military Service Versus Professional Engineering

By Charles Delmar Townsend, P. E.
Member, NSPE

TODAY our country is in a very strange position. Never before in its history has it been faced with so many complex problems. The answers to these problems will mean either the success of our country as a free democracy, or a country under national socialism.

Our thinking and actions as Professional Engineers will go a long way in helping to decide which will be our ultimate goal. Do most of us want a free country where we may practice our profession, help our fellow engineers and be free to run our own businesses? Or do we want to be told whom we will work for, how much we will charge, where we shall live and how we shall operate our businesses? Will we, if this happens, be allowed to retain any of the self respect that now goes with the operating of small companies? One way is the free enterprise system which has made this nation strong, and the latter is a form of socialism not far from our fear of communism, except that it is gained in a different way. Why are we a great nation? Not because we are told what to do and how to do it, but because we want to progress, we want to learn and we have to work for what we get.

The Universal Military Service plan now being talked of in Washington circles to eliminate the draft and the Universal Military Training, is actually an instrument by which we can defeat ourselves. The taking of all youth into the armed services by the time they reach the age of twenty is not only dangerous to the welfare of our nation as a whole, but should make our professional people stop and think. What will happen? Since we are primarily interested in what the Universal Military Service Plan will do to Professional Engineering, let us follow along these lines only.

Suppose your son, a young man of nineteen who has the makings of a good engineer, is about to graduate from high school or has just graduated. During his school years he has learned to work to earn some of those luxuries that he wanted. He has begun to know the value of money and that in order to get what he wants, he must work for it. Now, as he steps from the graduation platform he is rushed pell mell into the Universal Military Service Center. He is classified and sent into basic training for one of the Armed Services. Here he spends two years learning how to fight; perhaps he goes into actual battle or on some police duty. After the two years he is turned loose into a world that is foreign to him. He is a reservist and is subject to call at any time. Yes, now at twenty-one or twenty-two he may, if he so desires, start his college career. This is training that would be taken by a few even without assistance, but to make it more attractive the Government (that's you and I) will foot the bill on all expenses in order to see that more youth go to college.

We will not only give the youth the training, but we will have to support him along with it. Perhaps he will go to some school of higher

education, but frequently he will select one of the easier types, and this will not be an engineering college. He has learned from his period in the Armed Services that things are provided for him and there's always a Government to call upon for living expenses.

LET us suppose he does take up engineering and graduates with honors. His education was paid for by the Government, therefore, he is beginning to think he belongs to the Government. In the event of an emergency, such as we are faced with today, this youth must do as the leaders say. He must live where they tell him, work for those he is told to work for and at a set wage rate. A free man? Not by the present standards that govern our profession.

We have only covered one side of Universal Military Service. Suppose your son was not taken into the Armed Services but rather that he was assigned to a specialized training unit. He was given basic instruction and forced to work in a munitions or war plant. Naturally his services are paid for, but he does not select his job and, furthermore, he becomes a reservist at twenty-one and is subject to further call by the Government. Now, he too, is free to start his college training if he so desires.

Again, will he after earning high wages paid in the war plants want to go to college on his own? Would *you* be willing *now* to stop your own work and enter college for four years and pay your own expenses? It is doubtful. So again the attractive Government-paid-for program is sponsored—college training for this youth at his Government's expense. The outcome is the same as previously. It is no longer a free profession or a free country.

You say that you, personally, are not worried because the Army has a group of engineers within its own organization; that they will train and take certain youth for this organization. Yes, but not all our sons can be in the Army Corps of Engineers. There is not room enough for that in any Army.

No matter how we face this problem it is serious. Any form of Universal Military Training or Service is a blow to our educational program in this country. It reduces youths' desire to become educated. It removes the youth from the educational influence at a time when such influence is making an impression on the young mind. If education is offered under such a plan, it is Government controlled.

How can we build for defense of our country and still protect our engineering profession? Should we allow just the top honor students to complete the college training? This is dangerous for youth will suddenly find out that the colleges with the lower standards are those in which they can maintain the highest grades. Thereby a slow breakdown of our educational standards will set in.

No, this is not the way yet perhaps it could be developed. It is better than nothing. A better way, which also requires developing and definitely requires the support of all colleges and universities, is to establish a form of ROTC as a required subject in all schools of higher education.

Make the plan a part of the college course. Teach the students, both men and women, the basic knowledge of defense. Perhaps increase the attendance requirement from four to five years at colleges and allow one full year of actual military drill. All such training should be supervised, of course, by the Department of Defense. The selection of students for the various branches of the Armed Services could be developed along the present lines of the draft.

At least this idea would keep our youth in the colleges. If a student were to drop out of college before graduating, he would then become subject to immediate draft in order to complete his necessary military training. Any youth not wanting higher education, would be subject to Government call in a manner similar to that proposed under the Universal Military Service.

This idea needs support; it needs all the details worked out. However, if such a plan were placed into effect we would at least protect our educational system. We would let our youth get its education under a normal method. They could choose their own path leading to their life's work at an age when they should normally be thinking about such matters. They would secure their higher education at an age when they could learn more easily and adapt themselves more readily to conditions.

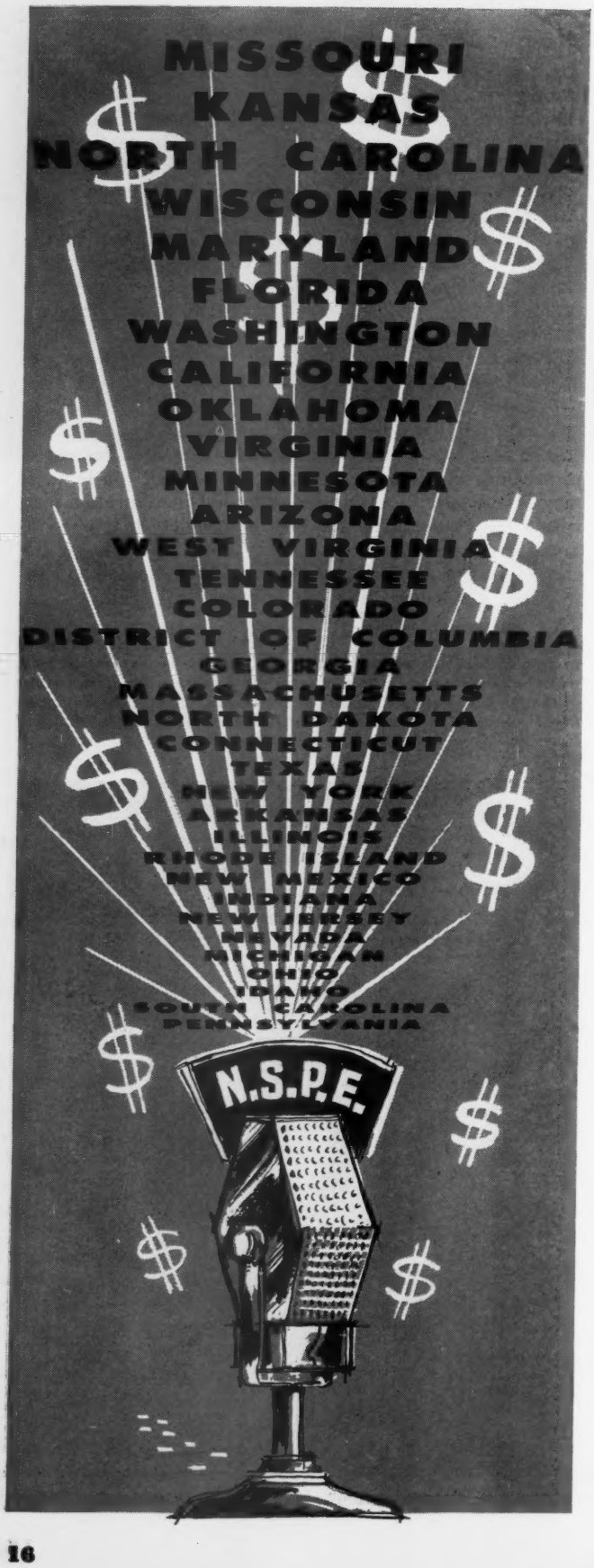
In turn we would not allow our Government, in the disguise of defense, to take over our educational system and our engineering profession and from these remove all vestiges of freedom. The plan, without doubt, has its faults but we would be better off with this than with Universal Military Service. Our educators are considering the problem and they are concerned about it. But as yet they have not coordinated as a group.

The professional engineers can help. We can exert our energies to stop the Universal Military Service Plan and to protect our engineering interests. Don't wait too long. It may be too late . . . even now. Why not inaugurate a plan within the Professional Engineering Society that our National organization can sponsor? Why not work for the end goal of protection of our way of life? Let us, as Professional Engineers, step out and take the lead.

***(Editor's Note:** These "Think" articles in the AE, designed to give the individual member an opportunity for expression on a wide range of subjects, do not necessarily express the official views of the Society. For more on the defense subject, see "The Engineering Profession in National Security," December, 1950, AE, and Page 20, this issue.)*

Will future students expect a free education?

Missouri Leads In Fund Drive; Over 2,000 NSPE Members Have Contributed



The "show me" state lost no time in being convinced that NSPE's Public Relations Fund Drive needed full support. With contributions from over 2,000 NSPE members now in, a recent tally showed Missouri in the lead in the percentage of members contributing. Close behind for top honors are Kansas, North Carolina, Wisconsin, Maryland and Florida.

The popular Fund Raising Campaign came in for full discussion at the recent meeting of the Society's Executive Committee in Washington. "It is my pleasure," President Sidney L. Stolte, told the group, "to be able to report that more than 2,000 members have generously contributed toward the Fund." The Society's chief executive went on to discuss some of the communications received from members commenting upon the fund raising drive and the anticipated program.

After a report from Chairman C. G. Roush, NSPE Public Relations Committee, the Committee authorized a second mailing to members requesting their support. It was further agreed that the mailing piece should emphasize the fact that the program will be conducted on a high and dignified plane and will be as broad as funds will permit.

The executive group then turned to a full discussion of the program to be carried out as soon as an adequate fund is built. It was affirmed that as much of the program as possible will be directed by the States and Chapters. It was further agreed that Chairman Roush should take steps immediately to obtain local mailing lists. These lists will be used when employers of engineers and users of engineering services are reached through the program.

Stolte told the Society leaders that, "Our Fund Raising Drive gains impetus with each passing day. We are well on our way and we will carry out our Four-Point Program this year. How broad that program will be depends upon the members. Naturally, the more money we have to spend, the better job we can do."

Earliest Contributors Not Listed In Last Month's American Engineer

Due to their letters transmitting contributions to the PR Fund being removed from normal clerical processes, some of the earliest and most generous contributors to the Fund Raising Drive, did not have their names included among other contributors listed in last month's magazine. Their enthusiastic letters are to be used as part of a new promotional mailing piece.

The American Engineer sincerely regrets any embarrassment the omissions caused the following Society leaders:

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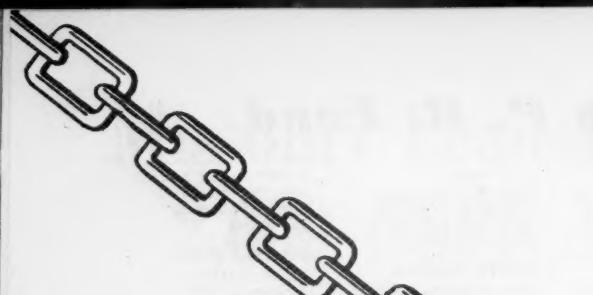

Unity Group Presents Full Report To Societies

By Alex Van Praag, Jr., P. E.,
NSPE Representative

As has been reported in several preceding issues of the AMERICAN ENGINEER, NSPE has been participating with 15 other societies in consideration of ways and means in which greater unity for professional action can be brought about in the engineering profession. This Exploratory Group, composed of representatives of the 16 participating societies, has met on several occasions during the past 18 months. Realizing that the Exploratory Group was too large to discuss the details of the several proposals submitted, a Planning Committee composed of 6 members of the Exploratory Group was created to explore the details of the plans proposed and to present a report to the Exploratory Group.

The Planning Committee presented their report without recommendation to the Exploratory Group on December 16th, and after discussion of certain details the entire report was released to the participating societies for distribution and discussion among members of the engineering profession. Copies of the complete report have been distributed to State Societies and Local Chapters of the NSPE together with a letter of comment by President Stolte and the suggestion that a Chapter meeting be devoted to consideration of the plans proposed. The Exploratory Group will be called into session again after each of the participating societies have had an opportunity to consider the proposals presented. It is hoped that the coming meeting of the Exploratory Group will not be scheduled until after the Annual Meeting of NSPE at which time representatives of the State Societies and Local Chapters will have an opportunity to present the thinking of their respective groups and to determine the policy of NSPE regarding these plans.

The societies participating in the exploratory conference are:

Am. Soc. of Civil Engineers
Am. Inst. of Mining & Metall. Engrs.
Am. Soc. of Mechanical Engrs.
Am. Inst. of Electrical Engrs.
Am. Inst. of Chemical Engrs.
Am. Association of Engineers
Am. Soc. for Engineering Education
Am. Soc. of Htg. & Ventilating Engrs.
Am. Soc. of Refrigeration Engrs.
Am. Water Works Association
Illuminating Engineering Soc.
Inst. of Aeronautical Science
Inst. of Radio Engrs.
National Soc. of Professional Engrs.
Soc. of Naval Architects & Marine Engrs.

The group agreed that the objectives of the unity organization shall be:

(a) To advance the general welfare of mankind through the technical knowledge and creative ability of the engineering profession.
(b) To promote cooperation among the various branches and groups of the engineering profession.
(c) To develop sound policies respecting public affairs in which engineering is an important factor.
(d) To stimulate engineers to take their proper place—individually and collectively—in public affairs.
(e) To advance the standards of engineering education.
(f) To maintain high professional standards among engineers.
(g) To enhance the recognition of engineering as a profession.
(h) To further the professional progress of young engineers.
(i) To aid and encourage the advancement of the theory and practice of engineering and principally through its affiliated societies.

These objectives were immediately recognized as creating certain initial problems for a unity organization. Four plans evolved from the considerations of the exploratory committee. They are as follows, with brief description of the major points of the plan:

Plan "A" — The Engineers' Joint Council Plan

This plan contemplates the expansion of the Engineers' Joint Council by the affiliation of additional engineering societies. It would be governed by a governing body consisting of from one to three representatives of each of the participating societies in proportion to their membership. It would be financed by direct allocation from the budgets of the participating societies, again, in proportion to the size of the society. No provision is made for individual membership, individual representation, or direct payment of dues.

Plan "B"—Modified Engineers' Joint Council Plan

This plan proposes expansion of the EJC to include other engineering societies and provide in addition, for voluntary individual membership. The organization would be governed by representatives of the participating societies in proportion to the size of each society. There would be in addition from one to five representatives elected directly by the individual members. Financing would be by apportionment from the budgets of the participating societies in proportion to the number of members, and, in addition, dues from the individual members from $3.00 to $10.00 is suggested.

Plan "C"—Merger Plan

This plan contemplates the merger of EJC with NSPE into a single body and the expansion of the merged organization in the ways necessary to enable it to represent the entire engineering profession. The unity organization would be composed of individual members of high standing either registered or equivalent qualifications. Administratively effective than local chapters, State Societies and the National Unity organization. Plan "C" would provide a governing body composed of representatives of the State Societies and in addition representatives of the participating national societies, the number and voting power to be determined. Financing would be secured primarily from dues of the individual members supplemented by contributions from the participating societies similar to those now allocated for the work of EJC and ECPD.

Plan "D"—The NSPE Plan

This plan proposes the adoption of NSPE as the unity organization and the expansion of its membership and

Lunch Recalled To Active Duty; Replaced by Arthur R. Woods

After serving on NSPE's Washington staff as legislative analyst and executive assistant since 1946, Milton F. Lunch has been recalled to active duty as a reserve army officer. He will be replaced by Arthur R. Woods, an ex-army officer who has recently been a civilian employee of the Central Intelligence Agency in Korea.

Mr. Lunch, who first joined the Society as legislative analyst, immediately upon his employment initiated the publication of a monthly bulletin to keep members informed of all important legislative developments in Washington and at the state level. Within a short time the popular publication had a circulation of nearly 5,000. When his legislative and administrative duties increased, he was designated executive assistant to Executive Director Paul H. Robbins, and held that position until his departure.

Mr. Woods was educated in Concord, N. H., schools and at the College of the University of Pennsylvania, from which he received his A.B. degree in 1931. After teaching English at the University of Pennsylvania, he did free lance writing until entering the University of North Carolina. He received his LL.B. degree in 1941.

Entering private practice, he soon volunteered for induction into the army. He became a second lieutenant in 1943, and was promoted through the commissioned ranks, serving as an infantry and counter intelligence officer in the States, Japan and Korea. He was discharged in 1947 as a major. Subsequent to that time and until his recent NSPE appointment, he acted as a research analyst for the CID in Korea.

Mr. Woods, his wife and two children, make their home in College Park, Maryland.

Milton F. Lunch

Arthur R. Woods

activities through the cooperation of other engineering societies. Membership would be limited to registered professional engineers and the governing body would be composed, as at present, of representatives from the affiliated State Societies. Financing would be accomplished exclusively from dues collected from the individual members.

All plans contemplate the establishment of a staff exclusively for the unity organization, and the activities of the unity organization would be limited to the non-technical professional matters with which all engineers are concerned.

The report presented by the exploratory committee to its constituent members contains in addition to more detailed description of the four plans presented, diagrams indicating the organizational structure of each plan. An appendix has been added in which additional details presenting advantages and disadvantages of each plan have been added.

(*Editor's Note: Report has been distributed to States and Chapters. Limited number of additional copies available from NSPE at* 50c *each.*)

OUR AUTHORS

Fred W. Fisch, P.E. (G. Washington; Engineer—Page 6), is now Deputy Superintendent, N. Y. State Department of Public Works. Born in Washington, D. C., he received his B.S. in C.E. from Union College in Schenectady. He is active in the NYSSPE, the American Society of Planning Officials, the Highway Research Board and other groups.

Everett S. Lee, P.E. (Industry Appraises and Develops the Engineer, Page 12), is an executive engineer for General Electric. A past president of AIEE, he is a native of Chicago and was graduated from Illinois in 1913 with a B.S. in E.E. He received his M.S. in 1915. A World War I air service officer, he is now interested in many civic affairs.

Charles D. Townsend, P.E. (Universal Military Service *versus* Professional Engineering, Page 14), was born in Holbrook, Mass. He received his B.S. in M.E. from Northeastern U. at Boston in 1934. He operates his own business of helping small businesses to obtain engineering aid and assistance along operation and management lines.

N. W. Dougherty (The Professional Torch, Page 9), is not a newcomer to American Engineer pages. Dean Dougherty is Dean of Engineering, University of Tennessee. He received his B.S. in C.E. from Tennessee in 1909 and his M.C.E. from Cornell in 1914. He has long been an outstanding engineering educational leader.

Robbins Speaks Before Senate Preparedness Group

(Editor's Note: On January 24, Paul H. Robbins, NSPE Executive Director, testified before the Preparedness Subcommittee of the U. S. Senate's Armed Services Committee. Mr. Robbins' Statement follows.)

Paul H. Robbins

My name is Paul H. Robbins. I am Executive Director of the National Society of Professional Engineers, 1121 15th St., N. W., Washington, D. C. Our organization is composed of 24,000 engineers who are registered under the various state laws governing the practice of engineering. The primary interest of our society is in the economic and professional interests of engineers. For the past several years, and particularly since the Korean invasion, we have been vitally concerned with the overall questions of national defense, particularly with reference to the contributions which may be made by the engineering profession to that important work.

The purpose of our appearance today is to present to this committee our considered views on the admittedly difficult subject of striking a proper balance between military manpower needs and the nation's requirements for technical achievement and advancement. There is general agreement today, certainly in the engineering profession, that our interest must lie first and foremost with what is best for the overall national defense from both a short-range and a long-range viewpoint. We wish to make it clear that our recommendations have that objective only and should be considered only from that viewpoint.

Many organizations, both governmental and private, have also given careful study to the problems of balancing our military manpower needs against our technical needs as a nation geared to defense production. As a result of all of these studies there appears to be complete agreement on certain fundamental facts which need not be labored at any length.

It is obvious that this nation cannot compete on a mass manpower basis with our potential opponents in the world. It is equally obvious that our great strength rests upon our technological achievements and our unsurpassed production capacity. This great capacity is a result of the technical achievements of our people and particularly of those who have been trained in the technical fields. Our trained technical manpower is being used to capacity today at a time when we have not moved fully into the increased production which our national defense needs will require. Despite some pessimistic predictions to the contrary the fact is that approximately 50,000 engineering graduates in 1950 have been absorbed by industry and there are still unfilled demands for more engineers. The same experience holds for professions operating in other technical fields.

We think the committee will find general agreement that the nation's policy during World War II of not continuing the training of engineers and scientists was a mistake, and it was this policy which accounts in large part today for the severe shortage. This viewpoint was confirmed by no less an authority than the President's Scientific Research Board which said in 1947, "in striking a balance among this complex of war pressures, the Government decided against deferment of science students. In the light of the effect of the policy in contributing to the present shortage the wisdom of the decision seems dubious."

The committee has heard, or we are sure will hear, many statistics about the present shortage and future shortages in engineering and other technical fields. According to a recent study by the Bureau of Labor Statistics there are approximately 65,000 engineers and scientists within the present draft age limits. If any substantial part of this group are taken into the armed services it will obviously mean an even more intense strain on our production potential. On the other hand, it is recognized that many engineers and scientists now employed in industry devoted to non-defense purposes can be and undoubtedly will be shifted to defense needs as our production machinery makes the transition from civilian production to defense production.

If we could safely assume that we are dealing with a limited emergency period, say of four or five years, we could probably squeeze through insofar as technical manpower is concerned, although there might be some serious aftereffects as a result of not replacing those who are lost by death, retirements, and other means of normal attrition. It might also mean a future inadequate supply for our future economic and industrial growth in later years. But these would be minor problems and not of fatal consequence compared to a long-range indefinite period of tension which we are told by various experts may last a generation or longer. It seems that we have no alternative but to prepare for this possibility. If so, it would appear that we have the corollary problem of maintaining an adequate supply of engineers, scientists, and others who will be indispensable to our world production leadership. Put in different ways by other groups and individuals these are the basic thoughts upon which there is general agreement.

If the committee is in accord that some definite workable plan must be developed to continue the flow of persons trained in various sciences it faces the very difficult problem of deciding which of the many suggestions offered to accomplish this purpose will best serve our needs. On the basis of its studies and consultations with other groups working in this same field the National Society of Professional Engineers offers the following principles as a sound basis for developing a realistic approach to the problem.

1. Deferments from military service for the purpose of scholastic training must be geared to the defense needs of the nation. Some activities requiring collegiate training are more directly related to defense needs than are others. It is not always possible to draw a clear line between them and there may be differing opinions as to the degree of importance or essentiality to the nation. The group claiming this status has the responsibility of showing that deferment of students for a certain type of training will contribute to the long-range overall defense of the nation. Of course, it would be desirable to allow all fields of edu-

(*Continued on page* 31)

PROFESSION OR TRADE? . . .

Engineers should definitely promote recognition of engineering as a *Profession* before the legal machinery of a paternalistic administration forces unqualified classification as a "trade."

The quoted interpretations of the Supreme Court embrace the practice of medicine within the scope of the Sherman Act as a "trade"; in my opinion this places the physician in the same general category as a drug store clerk. If this view is acceptable, the learned jurists who so decide are members of a "trade," for the broad use of the term "trade" includes lawyers as well as doctors and engineers, as it is said to include "all occupations in which men are engaged for a livelihood" (Justice Groner).

This law (or its interpretation) is lax in its failure to make a definite distinction between barter and sale of routine manual skill or of merchandise as a "trade"—and the sale of skilled personal service solving special problems contributing to the welfare of humanity as a "profession."

A mechanic such as a mason or carpenter sells routine manual skill in accordance with designs prepared by others. A business man sells merchandise, bound by no ethics other than his estimate of "what the traffic will bear." A doctor, lawyer, architect, or engineer, sells personal service with the element of profit subordinated to an accepted code of ethics. This personal service requires analysis of special problems and the exercise of judgment based on arduous study, training, and experience.

Even where "engineers" are merely trained technicians involved in some single phase of engineer's work, the exercise of judgment and the responsibility carried distinguish the work from a routine operation.

A set of properly prepared engineering plans and specifications, like a lawyer's brief or a doctor's diagnosis, is not to be confused with "merchandise." These are *instruments of service* and are tangible evidence of the principal's professional solution of a problem.

The charge that a recommendation without compulsion for a minimum scale of fees among members of a professional organization is illegal and in "restraint of trade" is fantastic indeed. Does not the legal profession (or "trade") have a minimum scale recommended? Do not labor unions have minimum wage scales frequently enforced, with loss and inconvenience to the general public?

There is something wrong with the application of the law to the professions involved. Engineers through their organizations should refuse to accept any proposed legal classification of professional engineering as of no higher status than that of a trade.—*Eric Fleming in a letter to the Editor of the Engineering News-Record, November,* 1950.

ENGINEERING'S BLIND SPOT . . .

Without in any way belittling or detracting from the brilliant record scored by the engineering profession in the American society, we do want to offer a few comments about the engineer's attitude toward the pressing political and economic questions of our times. Why the profession has demonstrated a surprising lack of social-mindedness may be due largely to a conspicuous defect in the engineer's education, or because most engineers are employees and their employers prefer that the engineer stick to his "technical knitting." In any event, it seems clear to some that the profession hardly senses its all but complete detachment from the critical life of our times.

The engineer possess the technical capacity to play a valuable and leading role, such as is being done by organized labor, business and farm groups. Resistance to social contacts, and unwillingness to accept public responsibility, certainly cannot serve to build public confidence in the profession. This is a plea for the diversion of a greater amount of the energy now devoted to narrowly specialized subjects to citizen-community relationships. Without this, the engineer is in danger of becoming a "hewer of wood and a drawer of water."—*Editor, Public Power, November,* 1950.

STANDARDS OF CITIZENSHIP . . .

We often speak of this as an age of science. Half a century ago many good people were very much troubled over the apparent conflict between science and religion. All too many people have resolved that conflict by forgetting religion. Then we began to speak of the times as the age of technology, the age of mass production. The emphasis was on the satisfaction of material wants. As Emerson put it a century ago:

> Things are in the saddle
> And ride mankind.

But such designations of our age are grossly superficial. This is not the age of science; this is not the age of technology; this is not the age of mass production; this is not even the age of atomic energy or the atomic bomb.

Like it or not, we must each of us sooner or later face up to the fact that this is an age of politics, and in many parts of the world the age of power politics. In every continent except ours you will find dictators struggling to suppress democracy. Even here government has taken over a large area of activity undreamed of a quarter of a century ago. You get four very definite reminders of this a year from the Collector of Internal Revenue and I know not how many times from state and local authorities. This is an age of power politics, because people no longer think of government as an institution to live under, an institution that will protect them from force and violence, at home and abroad and give them the opportunity to live, to work, to play, and prosper. On the contrary, many people now look on government as an institution to live on. The growth of government employment in America is something that should claim your attention.

This perennial reaching out of government is almost as grave a danger as the international threat that faces us on almost every continent. But with all of these involvements at home and abroad we face what seems to me to be an even more sinister phenomenon

(*Continued on page* 34)

Accent on Activity

ENGINEERS' WEEK WILL BE BIG EVENT THIS YEAR . . . After receiving specially prepared E.W. KIT from Headquarters, States and Chapters lost no time in getting organized at **local level** . . . As we go to press several states have had governors (see page 25) officially recognize the Week . . . Many more groups report plans that include everything from **television to speeches at civic clubs . . . Nearly 100 pictures of Washington offered in Kit as suitable for display, etc., have been requested . . . It will be a big week . . . MAKE CERTAIN YOU ARE PART OF IT.**

PUBLIC RELATIONS FUND DRIVE GETS INTO HIGH GEAR . . . Professional Engineers' auto plaques offered to contributors of $5 or more, were hard to secure because of metal shortages, but **NEW SHIPMENT IS NOW IN . . .** Early contributors should receive plaques soon while others will get them as soon as more are available . . . **THE SECOND MAILING PIECE ASKING MEMBERS FOR SUPPORT OF FUND DRIVE HAVE BEEN MAILED . . .** Watch your mail and don't discard **second class letters** before searching for NSPE piece . . . **READ IT CAREFULLY, ASK QUESTION OF CHAPTER, STATE OR NATIONAL OFFICIALS AND THEN GET BEHIND THIS VERY IMPORTANT ACTIVITY.**

HIGH SCHOOL STUDENTS ARE BEING REACHED BY NSPE . . . A newly prepared brochure aimed at HS students has been distributed to STATE SOCIETIES . . . It tells of the career opportunities of engineers . . . some States are using booklet for distribution by Chapters to SCHOOL OFFICIALS . . . NSPE members give talks to student groups and then distribute material.

NSPE IS DOING SOMETHING ABOUT URGENT MANPOWER SITUATION . . . See our testimony before Senate group as published on Page 20.

A NEW DIGEST OF THE RECENTLY PASSED DISTRICT OF COLUMBIA REGISTRATION LAW HAS BEEN PREPARED BY NSPE HQS. . . . Will be distributed to all interested engineers . . . **COPIES ARE AVAILABLE FOR THE ASKING.**

EXECUTIVE COMMITTEE MET IN WASHINGTON ON JAN. 14 . . . See page 24 for full report . . . Committee reviewed report of AWARDS COMMITTEE setting forth conditions under which an **ANNUAL AWARD WILL BE MADE TO AN OUTSTANDING ENGINEER . . . STATES WILL SOON BE ASKED FOR NOMINATIONS.**

IMPORTANT REPORT OF EXPLORATORY GROUP ON UNITY IN ENGINEERING PROFESSION has been sent to Chapters . . . See page 18 . . . Suggest Chapters study report and discuss.

DON'T FORGET THAT CERTIFICATES OF RECOGNITION FOR OUTSTANDING SERVICE are now available from NSPE Hqs . . . They are for use by Chapter, State or National officials to compliment a member for the effort he has put forth.

NSPE COMMITTEES GATHER NO DUST . . . Jack J. Hinman, Chairman, National Defense Committee, has requested States to send in names of men prominent in **Civil Defense activities . . .** Wants them to assist Committee in its work . . . **FEES SUB-COMMITTEE OR SALARY AND FEE COMMITTEE** has addressed questionnaire to 700-odd firms across Nation . . . Searching for info on LATEST FEE PRACTICES . . . MATERIAL WILL BE SUMMARIZED FOR FUTURE REPORT . . . **RESERVE FUND COMMITTEE** OF PRES. S. L. STOLTE, TREASURER RUSSELL B. ALLEN, AND HAROLD H. FUNK, N. Y. MEMBER, are reviewing investment of NSPE reserve monies . . . PRES. STOLTE has appointed **WM. H. LARKIN,** to cooperative EJC Committee on Surveys . . . **CLARENCE L. SHOCH** has been named to serve on JOINT ENGINEERING SOCIETIES LABOR LEGISLATION PANEL.

BOOK LOOKS

Title: Contracting As A Profession.

Author: Frederic W. Lord.

Published by: Richard R. Smith, New York. Price, $2.

"Contracting As A Profession" was written by Frederic W. Lord, P.E., member of the New York Society, in an effort to elevate the construction industry to a high professional level.

A copy of this book was sent to the Deans of all the Engineering Colleges in the country, and over fifty of them responded by asking for enough copies to provide one for each student taking courses in building, engineering construction and allied subjects. Thus, for some fifteen hundred embryo engineers "Contracting As A Profession" is now required reading.

Architects, engineers and contractors will find this book an effective means of securing clients. All business so obtained under the Professional Plan of Contracting will be on a satisfactory basis equitable to those who design and perform the work to be done, and to those who invest in building operations.

The book was based on Mr. Lord's practical experience of 53 years as President and Director of Lord Electric Company.

Title: Society and Thought in Early America.

Author: Harvey Wish.

Published by: Longmans, Green & Co. Price: $6.

Sir Walter Raleigh said, "In a word, we may gather out of history a policy no less wise than eternal; by the comparison and application of other men's forepassed miseries with our own like errors and ill deservings." Now, in this period of world crisis, it is not only interesting but wise for us to study America's past and see the triumphs, mistakes and glory that has gone into the shaping of our country. Reading "Society and Thought in Early America" will not furnish you with a solution for the confusion of world affairs, but it should help to furnish a background on the nature of the currents of thought among the American people, and how the United States became shaped to its present status. In the words of the author, Harvey Wish, "But the urgency of general interpretive works of social and intellectual history requires no defense today."

The particular period of American history covered in this excellent book is from the England and New England of Roger Williams through the Civil War. This is an especially important time in the formation of the United States, and one that is too often only explored thoroughly throughout the Revolutionary period. However, battles are secondary to thoughts and influences in Mr. Wish's work. The author's primary purpose seems to be the fathoming of the American spirit and the forces that molded it.

American experience and thought is touched on from many angles in Mr. Wish's work, including social theories, arts and crafts, economic changes, education, politics and religion.

"Society and Thought in Early America" is no dull text, and the interesting sidelights on famous personalities of this period make the book even more enjoyable. If colorful historical writing is your dish, you will enjoy tracing the rise of American Nationalism from the immigration of Roger Williams to the humanistic writings of Emerson, Thoreau and Whitman.

Title: The Public Speaker's Treasure Chest.

Author: Herbert V. Prochnow.

Published by: Harper & Bros. Price, $3.50.

The next time you're called on to make a speech and that dread disease known as platform paralysis sets in, you might effect a cure by dashing out and purchasing this handy little guide to better speech-making. In "The Public Speaker's Treasure Chest" you will find all sorts of tricks for brighter oratory, in addition to helpful information on the preparation and delivery of an address.

For example, the chapter titles include: "How to Prepare Your Speech," "How to Make Your Speech Sparkle," "Public Speaking in a Nutshell," "Jokes and Jests," "Wisecracks and Epigrams," "Amusing Definitions," "Interesting Lives and Interesting Facts," "Similes," "Colorful Phrases for Sparkling Speech," "Biblical Quotations," and "A Rich Treasure of Selected Quotations." In all fairness, some of the jokes and amusing definitions will never constitute a serious threat to Milton Berle's career, but the majority of them are very good, and quite a bit above the level of the standard club speaker's type of wit. The interesting lives section can be very valuable to you from the standpoint of illustrating various points, and, of course, Biblical quotations are always good.

In addition to helping public speakers, Mr. Prochnow's work is intended to help those who wish to make their private conversation more effective and interesting. So even if you don't intend to dazzle an assembled audience with your verbal fireworks, you might do your friends and business associates a kindness by reading through "The Public Speaker's Treasure Chest."

The author, an officer of the First National Bank of Chicago, is no theoretical speech expert, but has written the book out of the vast experience he has had as a public speaker.

Title: The Engineering Method.

Author: John Charles Lounsbury Fish.

Published by: The Stanford University Press. Price, $3.

"The Engineering Method" formulates the system of logic and reasoning that is the mark of the practicing engineer.

Charles Steinmetz once said: "Indeed, the most important part of engineering work — and also of other scientific work—is the determination of the method of attacking the problem, whatever it may be." The method —the engineering method—is simply "trained and organized common sense" applied in a systematic manner.

"The Engineering Method" begins with four pages on logic and reasoning, followed by six given to sharpening terms to be used in the special work ahead. Nontechnical problems are then solved, by way of illustration, and the steps of the method enlarged. The middle section of the book discusses practical conditions that control the use of the engineering method and solves four problems ranging from the figuring of the hypotenuse of a right triangle to the detailed application of the principles in the selection of Hetch Hetchy in the solution to San Francisco's problem of additional water supply.

Inescapable uncertainties in engineering work are studied in the final section. The first thirty-five pages contain examples in measurement and formulas, in sampling, and in classifying and forecasting. The final thirty pages show the variety of ways the engineer copes with these uncertainties.

John Charles Lounsbury Fish is emeritus professor of civil engineering, Stanford University. At the time of his retirement he was executive head of the civil engineering department.

Resigns . . .

C. George Krueger

Vice President C. George Krueger Resigns; Replaced By George J. Nicastro

C. George Krueger, P. E., Vice President of the Northeastern Area, and long active in NSPE and New Jersey SPE activities, has resigned. In submitting his resigning to the Executive Committee, he explained that ". . . the planning and organizing responsibility for a program of plant protection for the New Jersey Civil Defense agency, has been assigned me in addition to my regular duties and demands my full time . . ."

Accepting the resignation with regret, the Committee moved as provided in the NSPE Constitution to replace the vacant post. George J. Nicastro, P. E., National Director from New York, Vice Presidential nominee for the Northeastern area, and Chairman of the NSPE Publications Committee, was selected to fill the unexpired term.

Mr. Krueger, a charter member of NSPE, has served as president of the NJSPE and as its National Director since 1944. He was also chairman of the Publications Committee, before being elected to the Vice Presidency. He is presently serving as President of the newly formed Morris County Chapter, NJSPE.

He is now in charge of the Bureau of Engineering and Safety, New Jersey Department of Labor and Industry; Director, Governor's Conference on Industrial Safety, and Technical Director of the State Building Code; Director of *New Jersey Engineer*, quarterly journal of the New Jersey Society; member of the American Society of Safety Engineers; and he represents a number of national associations on the technical committees of the American Standards Association.

Mr. Nicastro was graduated from Stevens Institute of Technology in 1925 as a Mechanical Engineer and studied further at Alexander Hamilton Institute in Business Administration.

Upon graduation he worked as an engineer for the American Can Company in Brooklyn, New York, the Power Specialty Company, and the Edge Moor Iron Company of Delaware. Since 1934 he has been associated with the New York Office of the Combustion Engineering—Superheater, Inc.

He is a Director and member of the Executive Committee of the Stevens Alumni Association, President of the Stevens Metropolitan Club, a member of ASME, and has served on many local and national committees of the latter organization.

Nicastro has served as President of the New York Chapter for four terms and is Immediate Past President of the New York State Society.

Executive Committee Reviews Many Subjects At Meeting

All members of the Executive Committee with the exception of Vice-president C. George Krueger were present as NSPE President S. L. Stolte convened the first meeting of the Executive Committee of 1951, at Washington headquarters on January 14th. Many items were on the agenda for discussion, and the committee was held in almost continuous session until the late hours of the evening.

In addition to action on the implementation of the public relations program, a discussion of the report of the Exploratory Group on Unity in the Profession, the resignation of Vice-president Krueger, and several other items reported elsewhere in this issue, the following subjects came in for discussion.

President Stolte reported to the Executive Committee on the outstanding meeting at which he presented the charter of affiliation to the newly formed Delaware SPE. Acceptance of the Delaware Society had been approved conditionally by the Board of Directors at their fall, 1950, meeting and finally by the Executive Committee prior to its January 14 meeting.

A review of the financial statement of NSPE for the year ending December 31, 1950, showed some funds remaining. A portion of these funds were transferred to the reserve fund.

At the Little Rock Board meeting a statement of Policy of Relationship of the various elements of the Professional Society were approved in principle, and the edited statement of these principles was reviewed and approved by the Executive Committee at this meeting.

Procedures for receiving nominations for the NSPE annual award approved at the 1950 annual meeting were reviewed in another action, and authorized to be distributed to state societies requesting nominations. Possible location for meetings of the society for the remainder of 1951 and the annual meeting in 1952 resulted in several suggestions which will be presented to the Board of Directors at the annual meeting in Minneapolis.

State Presidents To Meet In Washington On March 3 and 4

Final arrangements have been completed for the 1951 annual conference of presidents of affiliated state societies. This year's conference will be held at the Hotel Washington, Washington, D. C., March 2 and 3.

The program will begin at 10:00 A.M., on the first day with a conference at the Pentagon to discuss with top defense officials the latest developments in the expanding mobilization for the defense of the country. Following this conference the presidents will return to the Hotel Washington where the District Society of Professional Engineers will be hosts at a cocktail party.

The Presidents' Conference itself will convene at 7:30 P.M., with the evening being devoted to a discussion of activities and programs of the professional society and implementation at the national, state and local levels. The conference will re-convene at 9:00 A.M. on the 3rd, to continue the discussions of the evening before, and to allow state presidents to exchange experiences regarding state programs and administration.

The luncheon on March 3 will be addressed by a top Washington official, and the conference will again convene at 2:00 P.M.

Around The Nation With Our Members

Ohio Society To Hold Annual Meeting In Toledo In March

The Ohio Society will hold the biggest convention of its history in Toledo on March 29, 30 and 31. This meeting will be the 72nd annual convention of the Society.

An imposing array of speakers has been lined up for the meeting, and among them will be Mr. Asa S. Knowles, president of the University of Toledo, who will address the trustees' dinner. Mr. Glenn Jackson, program director of radio station WPSD, will speak on "The Challenge of Television," and Mr. L. L. Dresser, P. E., presidential candidate for NSPE, will also address the group. The Student Chapter Conference will hear Mr. J. H. Nuffer, president of the Airway Electric Appliance Corporation, while Mr. Paul H. Robbins, P. E., executive director of NSPE, will act as moderator for a round table discussion at which the topic will be "The Problems of the Engineering Profession."

Special plans have been made to include the engineers' wives in the convention program. They will attend a luncheon at the Toledo Women's Club, followed by a tour of the Toledo Museum of Art. In addition, they will be feted at a card party.

With their husbands they will take the tour of Toledo Industry over the Toledo Terminal Railroad, and both will attend the theater party which has been arranged at the Repertoire Little Theater. The engineers and their wives will also attend a Monte Carlo party as well as the annual banquet, which will be followed by dancing.

Serving with Toledo Chapter President Guy E. Neeper as co-hosts for the convention are: T. E. M. Carville, President of the Maumee Valley Chapter; George E. Miller, President of the Ohio Northern Chapter; and Floyd L. Page, President of the Lake Erie Chapter.

Support the Public Relations Fund Drive!

GOVERNOR SIGNS PROCLAMATION

In the picture above, Governor Okey L. Patteson of West Virginia affixes his signature to the proclamation of Engineers' Week in West Virginia for the Week of February 18-24. In the group with Governor Patteson are the following officers of the West Virginia Society, reading left to right: H. J. Wagner, Treasurer; W. O. McCluskey, Jr., First Vice-President; Ross B. Johnston, Executive Secretary; Leslie C. Gates, President; Robert Williamson, Jr., Past President.

Tennessee Society Holds Annual Meeting In Nashville Recently

The Tennessee Society held its Annual Meeting on January 22 at the Maxwell House in Nashville, at which time new officers were installed.

It was announced that membership in the Society has been increased more than 50% during 1950, and a campaign to make this increase 100% is now underway.

West Virginia's Governor Proclaims Engineers' Week

The Honorable Okey L. Patteson, Governor of West Virginia, signed a proclamation on January 23, designating the week of February 18-24 as Engineers' Week in West Virginia, thus officially giving recognition to the part engineers have played in the life of West Virginia and the Nation as a whole.

In one section of the Proclamation, Governor Patteson said: "Whereas, so much is owed by all of us to the comparatively few who make up this great profession, who have pioneered, developed and brought to fruition many of the vast benefits to our economic, industrial and social well-being . . . it is fitting that we recognize and honor these benefactors of mankind."

Following the announcement of Engineers' Week in West Virginia, Governor Patteson said, "I urge that every citizen of West Virginia join me in extending recognition and honor to our engineers, who have so thoroughly earned our thanks and appreciation."

ATLANTA CHAPTER OF GEORGIA SOCIETY HOLDS ANNUAL MEETING

Shown above are two views of the Annual Meeting of the Atlanta Chapter, Georgia Society, which was held on December 19 at the Y.M.C.A. in Atlanta. At this meeting, Mr. Harold H. White, Chairman of the Legislative Committee for several years, was presented with a bronze plaque for his extraordinary service to the Society. Shown on the left, reading from left to right: James Austin; C. T. Baker, new President, Atlanta Chapter; Paul Weber; Cherry Emerson, Vice-president, Southeastern Area, NSPE; Charles Thomas and William Cram. On the right: Cherry Emerson, Vice-president, Southeastern Area, NSPE, is shown as he addresses the group on "Professionalism—Past, Present and Future."

New Jersey Chapter Upholds Registration Law By Recent Action

The Professional Practice and Ethics Committee of the Monmouth-Ocean Chapter of the New Jersey Society took steps recently to uphold the New Jersey Registration Law when they sent out an informative letter to member engineers, engineering firms, non-members and all concerned. The text of the letter is as follows:

"The term 'engineer' and 'engineering' has been used rather loosely in the past.

"The law of the State of New Jersey states in part 'No corporation, firm, partnership or association shall use or assume a name involving the word "engineers" or "engineering" or any modification or derivative of such terms, unless an executive officer, if a corporation, or a member, if a firm, partnership or association, shall be a licensed professional engineer of the State of New Jersey.'

"This notice is sent you so that you may notify the undersgined if you know of any violators, or suspect anyone of violating the law. If you are at present unwittingly violating the law the committee will welcome a letter outlining your intentions toward remedying the matter as our immediate objective is to be helpful to you rather than to embarrass any unintentional violator at this time. We would be glad to furnish you with information prerequisites to apply for a Professional Engineer's license.

"Committee on Professional
Practice and Ethics
"J. CHARLES MORGAN, P. E.
Chairman
Holmdel, N. J.
"GEORGE C. JORGENSEN, P. E.
Manasquan, N. J."

New Engineering Dean

G. Brooks Earnest, P.E.

Fenn College Names Earnest New Dean

G. Brooks Earnest, P. E., prominent civil engineer and professor of engineering surveying at Case Institute of Technology, was recently named Dean of Engineering for Fenn College, Cleveland, Ohio.

Professor Earnest, one of Cleveland's civic leaders for many years, assumed his new duties on February 1. In addition to being a director of the Cleveland Chapter, Ohio Society, and a national director of the American Society of Civil Engineers, Earnest is a member of the American Congress on Surveying and Mapping, the American Society of Engineering Education, The Society of Military Engineers, American Society of Photogrammetry, the Cleveland Engineering Society and the Regional Association of Cleveland.

Florida Chapters Sponsor Joint Meeting In Miami

Lt. Colonel Walter C. Youngs, Jr., Oak Ridge atomic energy expert, spoke at the Miami High School Auditorium on December 5, under the joint auspices of the Dade County Defense Council and the Miami Chapter of the Florida Society.

Youngs outlined precautions to be taken in the event of an atom bomb attack. He demonstrated his technical talk with film illustrating the damage caused by the A-bomb in Hiroshima and Nagasaki. Additional U. S. Army films showing the bomb damage were presented.

Colonel Youngs stated that modern methods of designing earthquake resistant structures would afford the closest approximation to a proper design method for protection against atomic blasts. Applying a design loading of 90 pounds per square foot for structures over 2,000 feet from ground zero would also serve as a method of designing buildings for protection against atomic destruction. For important shlters wtihin the 2,000 foot radial distance from ground zero, design loadings as high as 900 pounds per square foot would be required. Design loadings mentioned above are, of course, impractical and it is apparent that buildings that actually would be designed for those loadings would be too costly to construct. Colonel Youngs' photographs of bomb damage in Japan indicated that monolithically constructed concrete buildings, designed for earthquake loadings, stood a much better chance of resisting damage than structural steel construction.

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Delaware Speaker

Commander Floyd B. Schultz

Delaware Society Hears Address By Commander Schultz

Commander Floyd B. Schultz, planning and estimating superintendent, Philadelphia Naval Base, addressed the Delaware Society at their meeting on December 6 at the Hotel Rodney in Wilmington. Nearly 150 persons were present to hear Commander Schultz speak on "Engineering Ingenuity in Battle Damage Repairs."

Using slides to accompany his speech, Schultz told of one example in which a destroyer sunk by a mine in about 60 feet of water in a South Pacific harbor had provided parts for a number of damaged destroyers sent to the base for overhauling.

At the time, according to Commander Schultz, he had a barge and eight divers. From considerable experience he knew that the destroyer would be well preserved in the salt water and from an examination he found that there were many parts unharmed by the mine blast. All of the guns, gun mounts and other pieces of equipment on the sunken destroyer were removed by the diver crews and used to make repairs.

Commander Schultz told also of some of the difficulties met in obtaining parts and of keeping supplies of ordinary replacements.

His appearance as guest speaker at the meeting was made possible through the good offices of the Delaware Battalion, U. S. Naval Reserve, headed by Lt. Commander L. Joseph Tobin, who invited the Society to visit the installation at the old Dravo yards.

WHITE ADDRESSES STANISLAUS CHAPTER

Pictured above are members of the Stanislaus Chapter, California Society, and their recent guest speaker, Mr. William A. White, Executive Secretary, State Board of Registration of Civil and Professional Engineers for California. Left to right, standing, Fred Johnson, Second Vice-President; Frank Linehan, Secretary-Treasurer. Seated, Melvin Ware, First Vice-President, William A. White, and Merrill Adams, President.

Illinois Society Hears Lohr And Stolte At Recent Annual Meet

The Annual Meeting of the Illinois Society was held on February 1, 2 and 3 in Urbana, Illinois.

Featured speakers for the convention included: Mr. Sidney L. Stolte, President, NSPE, who spoke at the luncheon, and Major Lennox R. Lohr, President of the Museum of Science and Industry at Chicago and State Director of Civil Defense, who spoke at the banquet on "The Engineer's Role in Civil Defense."

Kallevang Speaks To Western Chapter Of Wisconsin SPE

Mr. Edwin J. Kallevang, P. E., president of the Wisconsin Society and chief engineer of Wisconsin Power and Light Company, was guest speaker for a dinner meeting of the Western Chapter, WSPE, on January 9 at the Stoddard Hotel in .

Kallevang spoke informally, presenting his impressions and experiences in the profession of engineering and as a member and officer of the Wisconsin Society. These topics served to emphasize the means of advancing the professional development of engineering practice and the public welfare.

The business meeting preceded the speaker's remarks, and a discussion of the annual WSPE meeting followed.

Stanislaus Chapter, CSPE, Hears White Of Registration Board

Mr. William A. White, Secretary of the California Board of Registration of Civil and Professional Engineers, addressed the Stanislaus Chapter of the California Society at their meeting on December 6 at Stanislaus.

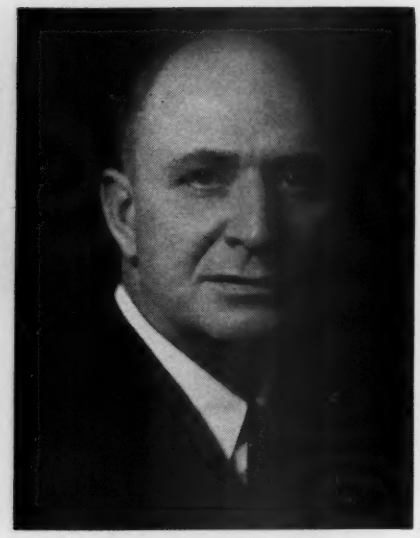
The subject of the discussion was the workings of the Office of the Secretary of the State Board. He gave some of the highlights of what they are trying to accomplish for the profession. He also gave, in a question and answer period, some of the difficulties in choosing adequate tests which would accomplish the purpose, and the trouble of enforcing the statutes regarding practice by non-registered men.

Kings County Chapter Of New York State SPE Meets In Brooklyn

The Kings County Chapter of the New York State Society met on January 18 at the Club House in Brooklyn for its regular meeting. The program featured a symposium on "The Behavior of Steel Under Fire and Acoustics In Modern Steel Frame Buildings."

The speakers for the occasion were Mr. John G. Hotchkiss, P. E., District Engineer, and Mr. Mace H. Bell, P. E., Assistant to Director of Engineering of the American Institute of Steel Construction.

Civic-Minded Engineer



Mayor Clairence K. Pulling

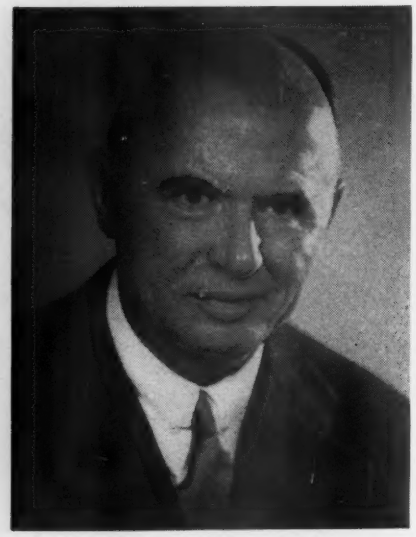
Mayor of Erie Combines Civic And Engineering Skills

The Pennsylvania SPE reports that an outstanding example of an engineer who has taken his place in civic affairs is Mr. Clairence K. Pulling of Erie, Pennsylvania. In addition to being a conscientious citizen, Mr. Pulling is an engineer in every sense of the word, and has many engineering achievements to his credit. As Deputy City Engineer for over 23 years he helped design the "Mill Creek Tube," an underground tube running from 32nd Street through the main part of the city of Erie to the Bay. The disastrous flood of 1914 showed that something had to be done to prevent a recurrence, and this was the engineering profession's answer to the problem.

In the course of a busy professional life, Mr. Pulling has taken time to serve as Manager, Erie County Motor Club; President, Erie County Branch. Penn State Alumni Association; and member of the following boards: Red Cross Advisory Board, Tuberculosis Association, Erie County Health Association, Cancer Society, Crippled Children's Association and Erie Guidance Center. In addition, Mr. Pulling was one of the organizers of the Erie Chapter of the Pennsylvania Society and served as its first President.

In November, 1949, Clairence K. Pulling was elected Mayor of Erie and he has carried with him into that office the same logic, planning ability, attention to details and clear thinking that has characterized his work in other fields, and those traits are paying dividends to the citizens of Erie.

Awarded Hon. Doctorate



Peter F. Loftus, P.E.

Loftus Of Pennsylvania SPE Awarded Honorary Engineering Doctorate

An Honorary Doctorate in Engineering, the first in its history, has been awarded Peter F. Loftus, P. E., by his alma mater, the University of Ottawa, Canada.

Mr. Loftus was graduated from the University of Ottawa in 1911, and also holds an Honorary LL.D. Degree which was conferred in 1939.

As head of the Peter F. Loftus Corporation, consulting engineers, Mr. Loftus lists among his clients many of America's biggest industries. He also has designed power plants for municipalities both in this country and abroad.

Mr. Loftus is a member of the American Institute of Electrical Engineers, American Mining Congress, Engineers Society of Western Pennsylvania, Cleveland Engineering Society, National Society of Professional Engineers and Pennsylvania Society of Professional Engineers.

He is a registered professional engineer in Pennsylvania, New York, Ohio and West Virginia.

Support the Public Relations Fund Drive!

Annual Meeting Of Indiana Society Held In Fort Wayne Recently

The Indiana Society held its Annual Meeting on December 1 and 2 at the Van Orman Hotel in Fort Wayne, Indiana, and some 250 professional engineers were in attendance.

Speaking at the opening session on Friday, December 1, Mr. Robert Y. Adams, city planning director, discussed the necessity of good public relations between planning boards and the citizens of any community. A motion picture on "Television" was also shown at the afternoon session by Mr. F. B. Ostman, service manager for the Capehart-Farnsworth Corporation.

Mr. Hugo A. Weissbrodt, works manager at the Fort Wayne International Harvester plant, spoke on "Quality Control" at the evening session.

Dr. A. E. Focke, president of the American Society for Metals and head of the Nuclear Energy for Propulsion of Aircraft Division's chemical and metallurgy department at Oak Ridge, Tennessee, was the main speaker at the afternoon session on Saturday. His topic was "Mechanical Testing."

Dr. R. B. Stewart, vice-president and treasurer of Purdue University, was the principal speaker at the concluding dinner session on Saturday night. A member of Phi Beta Kappa and one of the Nation's leading educators, Dr. Stewart discussed "Who Speaks For You?"

The Second Annual Engineers Ball was held at 9 p.m. and the convention closed at midnight Saturday.

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At Indiana Meet . . .

Pictured on this page are scenes from the Annual Meeting of the Indiana Society which was held at the Van Orman Hotel in Fort Wayne on December 1 and 2. In the right column, top to bottom, the first photograph shows Mr. Hugo Weissbrodt, Works Manager, International Harvester, Fort Wayne, as he addressed the evening session on December 1; second photo, left to right, Arthur Graham, R. K. Kitchen, Ralphs E. Pinnick, A. O. May, O. W. Mintzer, Martin J. Luichinger; third photo, left to right, E. G. Hinshaw, Radcliffe P. Cheesman, L. E. Easley, H. M. Estergreen, Richard J. Erb, F. B. Mendenhall, Col. Chester Lichtenberg, National Director, Indiana Society; fourth photo, left to right, O. B. Weaver, Mrs. Sam E. Brownsten, Bert McClellan, Leon J. Smith; left column, top photo, left to right, Ralph W. Walb, Archie T. Keene, Theodore Wood, Karl E. Schoenherr, Ralph B. Wiley; second photo, left to right, Daniel Tyndall, Richard W. Gardner, John R. Swanton, Joseph F. Wysong, Richard J. Erb, A. W. Rohlwing; third photo, left to right, Stanley M. Acton, Chester Y. Hogue, Harry Bollinger, Frank Derek, J. B. Wilson, James D. Wolfe, Bert McClellan. (See story opposite page.)

News To Note

West Virginia

The Wheeling Chapter of the West Virginia Society met recently at the McLure Hotel in Wheeling. The speaker of the evening was Mr. Joseph Manuele, Westinghouse Electric Corporation, Pittsburgh, who addressed the group on "Quality Control—What It Is And How To Use It."

Texas

The Galveston County Chapter of the Texas Society conducted its regular monthly meeting on January 15 at the Galveston County Court House. At this time the program for 1951 was outlined and Committee appointments were made for the year.

Wisconsin

The Fox River Valley Chapter of the Wisconsin Society held its Annual Meeting on December 6 at Chilton, Wisconsin.

Ohio

The Cincinnati Chapter of the Ohio Society met at the Hotel Alms in Cincinnati on January 8 for a dinner meeting. A round-table discussion forum was featured on the topic, "What I Expect of the OSPE."

New Jersey

The Hudson County Chapter of the New Jersey Society met at the Meyers Hotel in Hoboken on November 27. The speaker for the evening was Mr. Carlton S. Proctor of New York. His topic was "The United States Government Controls Affecting the Engineering Profession."

New York

The New York SPE, through its Kings County Chapter, was host at a special meeting of all of the State's professional engineers, land surveyors and EIT's who live or practice in Kings County, held at the Brooklyn Engineers Club on December 5.

The Society's activities in the area, and other matters of vital interest to all members of the engineering profession, were discussed. Outstanding engineers from other sections of the State also attended.

Pennsylvania

The Midwestern Chapter of the PSPE met at the Castleton Hotel in New Castle, Pennsylvania on December 2. The guest speaker was Mr. A. C. Farmer, Westinghouse Electric Corporation, Sharon, Pennsylvania, who talked on "Business Forecast."

Wisconsin

On December 12, the Milwaukee Chapter of the Wisconsin Society held a joint Ladies Night and Christmas Banquet at the ESM Building in Milwaukee. Following the banquet, a movie, "Sun Valley Times," was shown.

At the conclusion of the movie, Dr. Leroy N. Vernon, Director of Personnel Laboratory, Chicago, Illinois, gave an address on "The Engineer As A Member Of Society."

Ohio

The Toledo Chapter of the Ohio Society met on October 17 at the Tallyho Tea Room in Toledo, and heard an address by Mr. Harold B. Kauffman, Location & Design Engineer for Division #2, Ohio Department of Highways. Mr. Kauffman spoke on the proposed Super Highway System for the Toledo Area.

Minnesota

NSPE President Sidney L. Stolte was guest speaker at a joint dinner meeting of Chapter No. 1, Minnesota Society and the Western Chapter, Wisconsin Society, held on December 12 at The Oaks, Winona, Minnesota. Fifty members and guests of the two Chapters were present.

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"Testimony"

(*Continued from page* 20)

cation to continue without disruption if we could afford it manpowerwise. But if this is not possible, as seems to be the case, then in the national interest we should distinguish as best we can those fields which are desirable and those which are necessary. We are concerned here not with what is good for the schools or good for the students, but with that which is indispensable for the present and future safety of this country.

2. The number deferred in any particular field of study should be related to requirements. It is obvious that there is no sure way to estimate the exact future requirements in any particular field. It is equally clear, however, that our best interests will not be served by graduating more than we need in one field and less in another. We suggest that it is possible for groups of experts experienced in the various fields of essential study to arrive at reasonable estimates of future needs, such estimates to be revised from time to time as the situation changes. By such a system we could come reasonably close to meeting the actual demand instead of relying upon a hit-or-miss method whereby luck would be the determining factor in meeting manpower requirements.

3. The total number deferred in a given field of study should be allocated among the schools having accredited courses in that field and it should be left to the schools to select the students to be deferred for training. The group having the most experience in study ability are the schools themselves. We may be certain that the schools will select the best potential students based on their long and intimate knowledge in the particular specialized field.

4. A student accepted for training should be permitted to carry it forward to completion so long as his scholastic work is satisfactory. Under any plan it will have to be left to the school authorities to establish the line of satisfactory performance. Students dropped from the course for unsatisfactory scholastic progress would be subject to military service on the same basis as any other citizen.

5. A stipulated number of those students doing outstanding work and showing promise, as selected by the school authorities, should be permitted to do graduate work of at least one or two years. The number selected for this purpose should be relatively small but it is important we not let graduate work lapse completely.

6. Following completion of training the individual should be allowed a reasonable time for acquiring the necessary experience to appropriately utilize the education acquired. It will not serve our needs to defer a student for training and then allow that training to be wasted by failure to use it. Such persons should be permitted to take their training into industry or other activities deemed essential to national needs. If necessary, provision should be made for assignment of such persons where needed through a central registry of technical manpower.

7. Consideration should be given to the deferment or exemption of persons engaged in research or teaching in scientific and technical subjects. Obviously if it is deemed worth-while to modify the universal service requirements to assure the nation of a continuing flow of trained scientific and technical personnel, it is imperative that the cadre qualified to train such personnel be retained as nearly intact as possible, and that provision be made for the replacement of members within the cadre itself. Young faculty members and research associates provide the replacement pool necessary to the continued health of our teaching and research institutions, and a prolonged emergency will require the existence of such a pool.

The need for the exemption of such persons is more clearly evident from the common knowledge that scientific discoveries, inventions, and applications of the utmost importance are frequently characteristic of the earliest stages of a scientific or technical career. We cannot afford to ignore this most important potential.

Based on these principles we believe that a policy can be developed which will meet a real problem in a realistic way and one which public opinion will support as an essential part of our defense structure. We would like to stress the point that final authority in the decisions to be made under such a policy would rest with the federal government agency having jurisdiction. The several professional interests involved should act in an advisory capacity and be prepared to provide information and recommendations for consideration in determining requirements and other details.

At this point we should like to say to the Committee that, in our opinion, a proposal to restrict by law over a three year period the number of persons who can be released for study to 75,000, or for that matter to any specific figure, is of dubious wisdom.

The Committee is reminded that, as stated before, approximately 50,000 of this year's engineering graduates have been absorbed into either government or private employment, much of which is vital to the national defense. A glance at the advertising columns of any large daily newspaper will show that this number of graduates has proved far from sufficient for the country's needs. Important defense plants, even now, are in need of qualified personnel in all phases of engineering. The shortage is becoming acute and the end is far from in sight.

In a recent survey conducted by Dean S. C. Hollister of Cornell University on behalf of the Manpower Committee of the American Society of Engineering Education, the number of engineers needed in the next several years has been conservatively placed at a minimum of 30,000 graduates per year. It is a well known fact that additional members will have to enter the freshman engineering classes to produce such a figure. It can readily be seen, then, that a large percentage of the 75,000 students temporarily exempted under this bill would have to turn to engineering rather than to any other equally vital profession for the graduating classes four years hence to meet the conservatively estimated requirement of 30,000 engineers annually. Unless the flow of trained men in a vitally needed profession is maintained we would be depriving ourselves of an essential resource at a time when it would be most needed.

The number of students, graduate and undergraduate, permitted to continue their education on the basis of the reasoning just given should not be determined by an arbitrary figure, but by an actual determination of requirements established by an appropriate manpower mobilization organization composed of Federal Government Agency representatives, including the Armed Forces, and representatives of engineering organizations, science organizations, engineering schools and science schools.

For further assistance of the committee we should like to include with this testimony a statement of the National Society of Professional Engineers on The Engineering Profession in National Security.

We hope these suggestions will aid the committee in their difficult task of developing a program for the continuation of American leadership in technical strength and through that strength the production we will need if we are to remain free.

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TO THE Editor...

Pollution Prevention . . .

Dear Editor:

We note in the current issue of AMERICAN ENGINEER an announcement that the United States Public Health Service has formulated a proposed model law re: Water Pollution Control, and that that Agency has askd the Society's Legislative Committee to review law and to make recommendations.

Being interested in the Fishery Industries we are naturally very much concerned, and it is our well considered opinion that too much attention is being given to "Pollution Control." We feel that the problem involves Pollution Prevention—not "Control."

The writer has had many years of experience in matters involving water pollution, from sanitary wastes and industrial wastes. He feels that the term "Water Pollution" has never been properly defined.

Alaska, so far as sanitary wastes are concerned, is in no present danger. However, Alaska is now in danger of pollution by industrial wastes which might deal a knockout blow to the fishing industries of the Territory. In view of the fact that Alaska's prosperity is dependent, probably about 85% or more, upon the fisheries—and this includes the entire Territory—we feel that any menace to the fisheries should be given first consideration. Absolute prevention, not "Control" should be insisted upon. This is just another way of saying that "Pollution Control" and "Pollution Prevention"—before pollution occurs—must be viewed from the standpoint of the individual case. No blanket set of rules and regulations will probably ever be formulated to meet more than a very few of the situations now existing, to say nothing of situations yet to be expected.

HENRY W. BERGER, P.E.,
Petersburg, Alaska.

Use of Our Older Engineers . . .

Dear Editor:

Now that an emergency is once more upon us, it behooves our leaders, our industrialists and employers generally, to review the situation and see if we are making use of all available man power.

When we speak of employing older people, we are apt to think of them as handicapped. This is often only true in so far as arduous physical toil is concerned. . . . If we read the want ad columns in the daily papers, however, we will find many ads reading, "Wanted estimators or designers, draftsmen, specification writers or detailers, not over 40." We wonder why this age limitation is inserted, especially in view of the shortage of technical help.

Pension systems are of course responsible, to a large extent, for this accent on youth. It seems about time that a study be made covering the possibility of excluding temporary employees, above a certain age from the requirements of retirement compensation. Most older men would not object to being excluded from the pension system since the ultimate gain to them would be small. This question is of great importance and should be studied by the various engineering societies so that this handicap against the hiring of older workers can be removed.

There is another category of older workers who are available, and that is the part-time worker. Many engineers and technicians are working on their own and would be available for part time work. There are many others who have retired at 60, 65 or earlier perhaps equipped with enough of this world's goods to live in idleness but who would only be too glad to be active again. Many of these men have acquired interests which require some attention on their part, making them unavailable for full time work. Others may be physically unable to stand a full week of 40 hours or more but could readily work half time. . . .

Let us make a review of the situation to the end that a greater use can be made of the older engineers and technicians.

CHARLES ELCOCK, P.E.,
Philadelphia, Pa.

Hospital Work . . .

Dear Editor:

The writer was very pleased to see, for the first time in print, the article on that little-known breed, the professional engineer in hospital work.

Being somewhat related to same, and working for the U. S. State Department's Point Four Program in Guatemala, I can say that Engineer Millard's very complete, yet compact analysis applies here even more strongly than it does within the U. S.

Congratulations on the introduction of this type of article, I will be looking forward with anticipation to subsequent treatments.

GEORGE DALE, P.E.,
Engineer-in-charge,
Roosevelt Medical Center,
Guatemala City, C. A.

AE Read . . .

Dear Editor:

Most of the engineers and many of the architects in our organization read with increasing avidity each month your most inspiring and splendid publication. It certainly should be noted and supported by every engineer, both from the standpoint of personal profit to the engineer, individually and collectively, and the standpoint of enhancing the standing of the engineering profession in the eyes of the general public.

We understand that you have available a questionnaire for consulting engineers for your files and reference when called upon. If this is true we should appreciate a copy.

V. G. THOMPSON, P.E.,
Oklahoma City, Okla.

What About Du Pont? . . .

Dear Editor:

The article entitled "Engineers and Big Business" in the January, 1951 issue is, in my opinion, a good one. But, I have great difficulty in agreeing with him in view of the following (I wonder if you do?):

I—Sherman Anti-Trust Act

"No practical statute of limitations applies . . ." (Page 30) It would appear that Mr. Greenwalt thinks that corporations should receive more consideration than the true flesh and blood citizens. Does he by chance, overlook the fact that the corporation as such is a special status for its owners, board members and/or officers, i.e., that it is merely the figment of man translated into terms that permit business to operate with limited liability as to these affected parties?

The average person who breaks a criminal statute doesn't have the right to assume that a statute of limitations will ever bar prosecution against him. And, why should he? Then, by the same token, why should the corporation? If the corporation were so protected, then this protection would logically be extended to the corporate officers, board members, and/or owners who perpetrate these illegal acts. For, who, beside these parties can cause a corporation to act? The next step would be for these parties to leave the country until the statute of limitations had run against their last illegal acts. Would such practice ever permit proper law enforcement?

II—Monopolies

References—(1) Pages 766-768 of "A New American History" by W. E. Woodward
(2) Pages 372-374 of August. 1949 issue of "Consumers Union"

(1) "They, du Pont, wanted 10 per cent commission on the construction of the proposed smokeless powder plant and fifteen per cent on the value of its output for one year.

"The War Department did some figuring and came to the conclusion that the profit of the du Pont Company, under the proposed contract, would be $43,500,000. The demand was scandalous in its voracity."

(2) "As early as 1907, the company (du Pont) was found to have violated the anti-trust laws by combining and conspiring to monopolize the field of powder and explosives, and in 1912 its business was ordered split into 3 parts—du Pont, Atlas Powder Company; and Hercules Powder Company. But, this anti-trust action proved only a curtain raiser for du Pont's real expansion.

A. SLATON WALKER, P.E.,
Practicing Attorney-at-law,
Akron, O.

Deathless Prose . . .

Dear Editor:

. . . attached is a coupon clipped from the AMERICAN ENGINEER. I would have sent it in sooner if it had not always been carried on the back of a page carrying some article which I did not want to discard. Perhaps you ought to compliment yourself that you are printing articles people don't want to throw away.

R. S. DELAMATER, P.E.,
Wichita, Kansas.

"What They're Saying"

(*Continued from page* 21)

in our own domestic life. In 1940 only 59.5 per cent of our eligible voters took to trouble to go to the polls to vote for the next president. In 1944 the percentage had dropped to 56.4 per cent. In 1948 it had again dropped to 51.2 per cent. If this curve continues, it is plain that in 1952 we shall elect our president, a ruler with greater powers than any other in the world, by a majority of a minority of the eligible voters. This default not even to take the trouble to vote was dramatically illustrated in the Congressional elections. In 1938, thirty-eight million people voted for members of Congress, but in 1942, when we were well in World War II, eleven months after Pearl Harbor, the number of citizens who voted for members of the Congress that was to wage the war and perhaps dictate the peace dropped from 39 million to 28 million. Compare, if you will, these shameful figures with the recent election in Italy where 93 per cent of the people voted, or the still more recent election in Austria where 95 per cent of the people voted. I hope it is not true that we need to be deprived of our liberty as the citizens of these other countries were to make us recognize the practical worth to us of the great privilege of voting. One failure to vote is, of course, just a symptom of the disease which has many other unhappy manifestations. A nationwide poll made not so long ago revealed that 67 per cent of the people answering a questionnaire said they would not like to have their sons go into politics, and 50 per cent of all the people said that a man could not go into politics and remain honest. Think of that! Of course, there are dishonest politicians just as there are dishonest businessmen, but no one suggests that we should not go into business because some businessmen are faithless. After a quarter of a century or more of political activity, I have the firm conviction that the percentage of dishonest politicians is no greater than the percentage of dishonest businessmen, or dishonest labor leaders, or dishonest anything else. How are we to run a democratic representative system of government if good people are too good for public affairs?

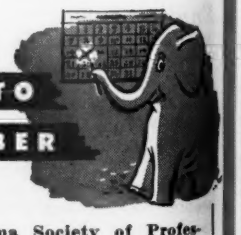
I can not deny that politics may be a mean game. I have known what it is to be subjected to public attacks which everyone knew were absolutely untrue. It is very disagreeable; it makes a man of integrity very angry. But as I see it, we have the alternative of either doing our share year to year, month to month, and week to week in this disagreeable game of politics or every quarter of a century or less sending our sons—and it may well be next time our daughters—into the frightful ordeal of total war, not to mention imposing on our children and our grandchildren and their children in turn a staggering national debt which it seems almost impossible ever to meet. For any sane man or woman there can be no question as to what the choice will be. And yet the fact is that most men shrink from running for public office.

You may think the situation that I am describing is something of recent growth. Not so at all. *Fortune* ran a survey some years ago of the 67,000 graduates of the twelve leading preparatory schools in the United States. Some of these schools had histories running back for a century or two. Out of that tremendous number of picked men there was but one president, one justice of the United States Supreme Court, and 27 senators. For all too long our best brains have been going into business, into science, and into the law, and neglecting politics. Well, there you have the problem—a world in turmoil, the men who should be our public leaders uninterested in government and politics, and our citizens when they do vote not always voting intelligently.

Our country really asks very little of us in voting and in jury service and yet if we do not attend to these fundamental responsibilities, we may be very sure that we are helping to bring on the day when the state will ask of us the ultimate duty of military service, which no one may refuse. Not only will the command come to us, but to the younger generation, a command that might have been escaped if each and every one of us had done his full duty in peacetime as a citizen. A man may be just as patriotic in peacetime as in war, though strangely enough we have a tendency always to think of patriotism as exclusively as wartime virtue. In addition to all of these official duties, however, each of us has an equally important unofficial duty as a citizen.

Ours is a country that is run in the last analysis by public opinion. If we are really to do our full duty as citizens, we must be ready year in and year out to play our part in the molding of public opinion. We do not have to go far to find an example of failure of public opinion to meet its responsibilities. Back in October, 1937, President Roosevelt made a very courageous speech in Chicago, popularly known as the Japanese Quarantine Speech. That was nearly two years before World War II started and well over four years before we went into the war. The chances are that if we had heeded that speech, World War II might have been avoided or at least confined to the European area, but the fact is that practically every newspaper in the United States, Democratic and Republican alike, accused the President of being a warmonger. We had no intelligent public opinion in the United States in the realm of international affairs to back him up at that time. Consequently his ideas on this subject died aborning and the road for Pearl Harbor was prepared.

I have indicated some of the main problems which confront the average citizen. I can hear many people say "We haven't got the time. We are all so busy getting started. We are all so busy running some corporation that we just haven't got time to think of our duties as citizens." It would be interesting for each and every one of us to jot down in the course of a year just how many days, or hours, or minutes each of us gives to his duties as a citizen. I warrant for the average man it would be less than an hour in the course of a year, and for many much less than that. We have neglected our birthright. Indeed, many of us seem to have failed to recognize what it really is—freedom, greater than has been known anywhere else in the civilized world or anywhere else in the pages of recorded history. The only thing that is going to stop freedom from failing in this country is the attention of every man and woman, especially those who have the intelligence and character to be leaders, to performing his or her duties as a citizen.—*Arthur T. Vanderbilt, Chief Justice, Supreme Court of New Jersey, Mechanical Engineering, November,* 1950.



DATES TO REMEMBER

North Carolina Society of Professional Engineers—Feb. 23, 24. Alamance Hotel, Burlington.

Kansas Society of Professional Engineers—Feb. 23, 24. Salina.

State Presidents' Conference—March 3, 4. Washington, D. C.

Ohio Society of Professional Engineers—March 29, 30, 31. Toledo.

New York State Society of Professional Engineers—Silver Anniversary Convention and Annual Engineering Industries Exposition. May 10, 11 and 12. Statler Hotel, New York City.

What's New

As a service to our readers, this column will describe briefly new product developments of general interest to professional engineers. When writing manufacturers, we will appreciate your mentioning the American Engineer.

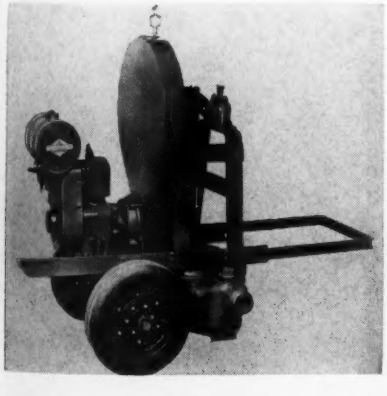
● A new type of earth handling machines has been developed by Sherman Products, Inc., Royal Oak, Michigan, which is completely controlled by time-tested hydraulics.

The new power digger unit, a heavy-duty digger that is lightweight and easy to move, works behind a tractor, with the hydraulic pump, independently mounted, operated from the power take-off shaft of the tractor. All digger motions are hydraulically operated.

The "power digger" can be easily used for all types of excavating work that was formerly handled only by a much larger shovel or by hand labor. The standard hoe-type shovel cuts an 18-inch wide trench and has a capacity of 3.5 cubic feet. The entire unit can be installed on or removed from a tractor in 15 to 20 minutes.

If you desire further information, write Sherman Products, Inc., 3200 W. 14 Mile Road, Royal Oak, Michigan.

● Two light-weight Mud Hog Diaphragm Pumps are now being produced by Marlow Pumps of Ridgewood, New Jersey. They can be lifted on and off of trucks by two men and easily wheeled around difficult construction jobs by one man.



Primarily intended for seepage control and ditch work, the light-weight Mud Hogs will lift from levels 25 feet below the pump and handle liquids almost heavy enough to shovel. The new pumps are the most rugged "light-weight" diaphragm pumps available for pumping heavy liquids from ditches and other excavations. Complete descriptive and illustrative information is available from the manufacturer, Marlow Pumps, Box 566, Ridgewood, New Jersey.

● A thin, transparent tape with adhesive on both sides—a tape that can be lifted repeatedly in making blueprint layouts—was made nationally available recently.

The tape is "Scotch" brand double-coated cellophane tape No. 666, made by Minnesota Mining and Manufacturing Co., St. Paul, Minnesota. It has a pressure-sensitive adhesive that holds tighter to most paper than it does to blueprint paper—so that when paper units are lifted and moved to other parts of the blueprint, the tape sticks to the paper unit, peeling away from the blueprint. It adheres immediately upon contact to paper, glass, wood and metal surfaces, and to most plastics.

It is provided in width of 1/4, 3/8, 1/2, 3/4 and 1 inch, with other widths available on special order. Distribution is through paper jobbers. Sample rolls and further information are available from the Minnesota Mining and Manufacturing Co., 900 Fauquier Street, St. Paul 6, Minnesota.

● A new combination Life-Linestarter, combining motor starter, motor protection, and disconnect in a redesigned enclosure to save space and increase safety, is now available from the Westinghouse Electric Corporation.

Designed for across-the-line starting of squirrel cage induction motors, or as a primary switch for wound rotor motors, this unit features the new Life-Linestarter, AB De-ion Circuit breaker, and slamproof self-indicating interlocked handle.

Standardized enclosures, compact design, straight-through wiring, and front-removable parts provide safe, easy installation and maintenance. Sheet-steel enclosures are Bonderized to increase corrosion resistance.

For further information, write Westinghouse Electric Corporation, P. O. Box 2099, Pittsburgh 30, Pennsylvania.

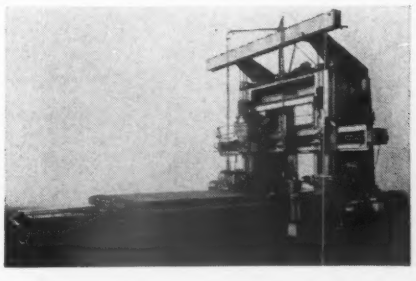
● For heavy-duty logging, the Hyster Company of Portland, Oregon, announces a new logging arch, the model "80" for use with "Caterpillar" D8 track-type tractors.

The new arch is considerably lighter in weight than former models, but retains the rugged construction and balanced characteristics of previous designs. The reduced weight permits greater speed over steep terrain and increased production.

An important feature of the Model 80 is that its boom tip fairlead rolls and lower guide sheave are made of manganese steel developed to give extreme abrasion resistance and long life. In addition, an increase of approximately one foot in roll height to the top of the main roll permits bigger payloads per trip.

For additional details, a specification sheet will be furnished upon request from the Hyster Company, 2902 N. E. Clackamas Street, Portland 8, Oregon.

● A new Cincinnati combination planer and miller built to handle large work is announced by the Giddings & Lewis Machine Tool Co., Fond du Lac, Wisconsin. In this new Hypro machine are combined engineering features designed to simplify the setup and the machining of huge parts and assemblies. The machine will receive work 126″ wide, 108″ high and 26′ long.



To increase the flexibility of the combination machine, a right and left hand planer head is mounted on the rail. These may be operated individually or simultaneously. Other features of the Hypro combination planer-miller include non-metallic table ways; forced lubrication to the table ways; complete herringbone gear table drive; dual rail control; centralized saddle control; precision adjustment handles; power cross feed to planer side head; and separate pendant control for planer and milling operations. For further details, write the Giddings & Lewis Machine Tool Co., Fond du Lac, Wisconsin.

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